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**As filed with the Securities and Exchange Commission on November 4, 2019**

**Registration No. 333-233588**

# UNITED STATES
# SECURITIES AND EXCHANGE COMMISSION
**Washington, D.C. 20549**

**Amendment No. 3 to**
# FORM S-4
**REGISTRATION STATEMENT**
**UNDER**
**THE SECURITIES ACT OF 1933**

# GEMPHIRE THERAPEUTICS INC.
(Exact name of Registrant as specified in its charter)

| **Delaware** | **2834** | **47-2389984** |
|---|---|---|
| (State or other jurisdiction of incorporation or organization) | (Primary Standard Industrial Classification Code Number) | (I.R.S. Employer Identification Number) |

**P.O. Box 130235**
**Ann Arbor, MI 48113**
**(734) 245-1700**
(Address including zip code, and telephone number, including area code, of Registrant's principal executive offices)

**Steven Gullans, Ph.D.**
**President & Chief Executive Officer**
**Gemphire Therapeutics Inc.**
**P.O. Box 130235**
**Ann Arbor, MI 48113**
**(734) 245-1700**
(Name, address, including zip code, and telephone number, including area code, of agent for service)

**Copies to:**

| **Phillip D. Torrence**<br>**Honigman LLP**<br>**650 Trade Centre Way, Suite 200**<br>**Kalamazoo, MI 49002-0402**<br>**(269) 337-7700** | **John L. Brooks, III**<br>**President & Chief Executive Officer**<br>**NeuroBo Pharmaceuticals, Inc.**<br>**177 Huntington Avenue, Suite 1700**<br>**Boston, MA 02115**<br>**(617) 313-7331** | **Megan N. Gates**<br>**Marc D. Mantell**<br>**Melanie Ruthrauff Levy**<br>**Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.**<br>**One Financial Center**<br>**Boston, MA 02111**<br>**(617) 542-6000** |
|---|---|---|

**Approximate date of commencement of proposed sale of the securities to the public:**
**As soon as practicable after the effectiveness of this registration statement and the satisfaction or waiver of all other conditions under the Merger Agreement described herein.**

If the securities being registered on this Form are being offered in connection with the formation of a holding company and there is compliance with General Instruction G, please check the following box. o

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

| Large accelerated filer o | Accelerated filer ☒ | Non-accelerated filer o | Smaller reporting company ☒<br>Emerging growth company ☒ |
|---|---|---|---|

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☒

If applicable, place an X in the box to designate the appropriate rule provision relied upon in conducting this transaction:

Exchange Act Rule 13(e)-4(i) (Cross-Border Issuer Tender Offer) o

Exchange Act Rule 14d-1(d) (Cross-Border Third-Party Tender Offer) o

**CALCULATION OF REGISTRATION FEE**

| Title of Each Class of Security Being Registered | Amount to be Registered(1) | Proposed Maximum Offering Price Per Share | Proposed Maximum Aggregate Offering Price(2) | Amount of Registration Fee(3) |
|---|---|---|---|---|
| Common stock, $0.001 par value per share | 441,940,256 | N/A | $465.32 | $1.00 |

(1) Represents the maximum number of shares of common stock, $0.001 par value per share ("Gemphire common stock"), of Gemphire Therapeutics Inc., a Delaware corporation ("Gemphire"), issuable to holders of common stock, $0.0001 par value per share ("NeuroBo common stock"), and options of NeuroBo Pharmaceuticals, Inc., a Delaware corporation ("NeuroBo"), in the proposed merger of GR Merger Sub Inc., a Delaware corporation and a wholly-owned subsidiary of Gemphire, with and into NeuroBo (the "merger"). The amount of Gemphire common stock to be registered is based on the estimated maximum number of shares of Gemphire common stock that are expected to be issued pursuant to the

merger, using an exchange ratio of 31.6587 shares of Gemphire common stock for each share of NeuroBo common stock and for each option exercisable for shares of NeuroBo capital stock, without giving effect to a reverse stock split of Gemphire common stock expected to be completed immediately prior to the merger.

(2) Estimated solely for purposes of calculating the registration fee in accordance with Rule 457(f)(2) of the Securities Act of 1933, as amended. NeuroBo is a private company, no market exists for its securities, and NeuroBo has an accumulated capital deficit. Therefore, the proposed maximum aggregate offering price is one-third of the aggregate par value of the NeuroBo securities expected to be exchanged in the proposed merger.

(3) This fee has been calculated pursuant to Section 6(b) of the Securities Act of 1933, as amended, and has been rounded up to $1.00. Gemphire previously paid this amount.

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**The Registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment that specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.**

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**The information in this proxy statement/prospectus/information statement is not complete and may be changed. Gemphire may not sell its securities pursuant to the proposed transactions until the Registration Statement filed with the Securities and Exchange Commission is effective. This proxy statement/prospectus/information statement is not an offer to sell these securities and is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.**

**Subject to completion, dated November 4, 2019**

**PROPOSED MERGER**
**YOUR VOTE IS VERY IMPORTANT**

To the Stockholders of Gemphire Therapeutics Inc. and NeuroBo Pharmaceuticals, Inc.:

Gemphire Therapeutics Inc. ("Gemphire") and NeuroBo Pharmaceuticals, Inc. ("NeuroBo") have entered into an Agreement and Plan of Merger and Reorganization as amended by the First Amendment to Agreement and Plan of Merger and Reorganization dated October 29, 2019 (the "Merger Agreement") pursuant to which a wholly-owned subsidiary of Gemphire will merge with and into NeuroBo, with NeuroBo surviving as a wholly-owned subsidiary of Gemphire (the "merger").

At the effective time of the merger (the "Effective Time"), each share of common stock of NeuroBo, $0.0001 par value per share ("NeuroBo common stock"), will be converted into the right to receive approximately 29.2911 shares of Gemphire common stock, $0.001 par value per share ("Gemphire common stock") subject to adjustment for the reverse stock split of Gemphire common stock to be implemented prior to the consummation of the merger as discussed in this proxy statement/prospectus/information statement (the "Exchange Ratio"). This Exchange Ratio is an estimate only as of the date hereof and the final exchange ratio will be determined pursuant to a formula described in more detail in the Merger Agreement and in the section entitled "*The Merger—Merger Consideration and Exchange Ratio*" beginning on page 181 of this proxy statement/prospectus/information statement. Immediately prior to the Effective Time, each share of preferred stock, $0.0001 par value per share, of NeuroBo ("NeuroBo preferred stock" and, together with the NeuroBo common stock, "NeuroBo capital stock"), will be converted into one share of NeuroBo common stock in accordance with the applicable provisions of NeuroBo's certificate of incorporation, and all of NeuroBo's outstanding convertible notes will convert into NeuroBo common stock. Gemphire will assume outstanding and unexercised options to purchase shares of NeuroBo capital stock, and in connection with the merger they will be converted into options to purchase shares of Gemphire common stock. At the Effective Time, Gemphire stockholders will continue to own and hold their existing shares of Gemphire common stock subject to the reverse stock split of Gemphire common stock to be implemented prior to the consummation of the merger, and all outstanding and unexercised warrants to purchase shares of Gemphire common stock immediately prior to the Effective Time will remain in effect pursuant to their terms. Each existing unexpired and unexercised option to purchase Gemphire common stock (a "Gemphire Option"), whether vested or unvested, will be accelerated in full pursuant to the Merger Agreement effective as of immediately prior to the Effective Time. Any Gemphire Options having an exercise price per share less than the volume weighted average closing trading price of a share of Gemphire common stock on Nasdaq for the five consecutive trading days ending five trading days immediately prior to the date upon which the merger becomes effective (the "Gemphire Closing Price") will be automatically exercised. Gemphire Options having an exercise price per share greater than the Gemphire Closing Price will be terminated and cease to exist as of immediately prior to the Effective Time for no consideration.

Immediately following the consummation of the merger, NeuroBo securityholders are expected to own, or hold rights to acquire, approximately 96.26% of the Gemphire common stock, and Gemphire securityholders are expected to own, or hold rights to acquire, approximately 3.74% of the Gemphire common stock on a fully-diluted basis, subject to adjustment of the Exchange Ratio as set forth in the Merger Agreement.

Shares of Gemphire common stock are currently listed on the Nasdaq Capital Market under the symbol "GEMP." Gemphire has filed an initial listing application for the combined company with the Nasdaq Capital Market. After completion of the merger, Gemphire will be renamed "NeuroBo Pharmaceuticals, Inc." and expects to trade under the symbol "NRBO". On November 1, 2019, the last trading day before the date of this proxy statement/prospectus/information statement, the closing sale price of Gemphire common stock was $0.36 per share.

Gemphire is holding its 2019 annual meeting of its stockholders (the "Gemphire annual meeting") in order to obtain the stockholder approvals necessary to complete the merger and related matters, hold an election of directors and ratify the selection of an independent registered public accounting firm. At the Gemphire annual meeting, which will be held at 8:00 a.m., Eastern time, on Friday, December 6, 2019 at 315 East Eisenhower Parkway, Suite 100, Ann Arbor, Michigan 48108, unless postponed or adjourned to a later date, Gemphire will ask its stockholders to, among other things:

1. approve the issuance of Gemphire common stock to NeuroBo's stockholders pursuant to the Merger Agreement and the change of control of Gemphire resulting from the merger;
2. approve an amendment to the third amended and restated certificate of incorporation of Gemphire (the "Gemphire Certificate of Incorporation") to effect a reverse stock split of Gemphire common stock, within a range, as determined by Gemphire's board of directors (the "Gemphire Board"), of one new share for every 15 to 25 (or any number in between) shares outstanding;
3. approve an amendment to the Gemphire Certificate of Incorporation to change the corporate name of Gemphire from "Gemphire Therapeutics Inc." to "NeuroBo Pharmaceuticals, Inc.";
4. approve the adoption of the Gemphire Therapeutics Inc. 2019 Equity Incentive Plan;
5. elect two nominees for Class III directors named in the accompanying proxy statement/prospectus/information statement, each to serve a three-year term until the 2022 annual meeting of stockholders and until the election and qualification of his successor, or his earlier death, resignation or removal (provided that, if the merger is completed, the Gemphire Board will be reconstituted as provided in the Merger Agreement);
6. ratify the appointment of Ernst & Young LLP as Gemphire's independent registered public accounting firm for the fiscal year ending December 31, 2019 (provided, however, that it is likely that the combined company may decide to engage a new independent registered public accounting firm immediately or shortly after the merger is completed);
7. consider and vote upon an adjournment of the Gemphire annual meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of Proposal Nos. 1, 2, 3 or 4; and
8. transact such other business as may properly come before the Gemphire annual meeting or any adjournment or postponement thereof.

As described in this proxy statement/prospectus/information statement, certain of NeuroBo's stockholders who in the aggregate own approximately 90% of the outstanding shares of NeuroBo common stock on an as converted to common stock basis, and certain of Gemphire's stockholders who in the aggregate own approximately 26% of the outstanding shares of Gemphire common stock, are parties to voting agreements with Gemphire and NeuroBo, whereby such stockholders have agreed to vote their shares in favor of the adoption or approval of certain proposals described in this proxy statement/prospectus/information statement, subject to the terms of the voting agreements.

In addition, following the registration statement on Form S-4, of which this proxy statement/prospectus/information statement is a part, being declared effective by the U.S. Securities and Exchange Commission (the "SEC") and pursuant to the conditions of the Merger Agreement and the voting agreements, NeuroBo securityholders who are party to the voting agreements will each execute an action by written consent of NeuroBo securityholders (the "written consent") adopting the Merger Agreement, thereby approving the transactions contemplated therein, including the merger. These securityholders hold a sufficient number of shares of NeuroBo capital stock to adopt the Merger Agreement, and no meeting of NeuroBo securityholders to adopt the Merger Agreement and approve the merger and related transactions will be held. All NeuroBo stockholders will have the opportunity to elect to adopt the Merger Agreement, thereby approving the merger and related transactions, by signing and returning to NeuroBo a written consent.

After careful consideration, the Gemphire Board has approved the Merger Agreement and the respective proposals described in this proxy statement/prospectus/information statement and determined that the merger and all related transactions contemplated by the Merger Agreement are fair to, advisable and in the best interests of Gemphire and its stockholders. The Gemphire Board recommends that Gemphire's stockholders vote "FOR" the proposals described in this proxy statement/prospectus/information statement.

After careful consideration, NeuroBo's board of directors (the "NeuroBo Board") has (i) determined that the merger and all related transactions contemplated by the Merger Agreement are fair to, advisable and in the best interests of NeuroBo and its stockholders, (ii) approved and declared advisable the Merger Agreement and the transactions contemplated therein and (iii) determined to recommend, upon the terms and subject to the conditions set forth in the Merger Agreement, that its stockholders vote to approve the Merger Agreement and the transactions contemplated thereby. The NeuroBo Board recommends that NeuroBo's stockholders sign and return the written consent, indicating their (i) adoption and approval of the Merger Agreement and the transactions contemplated thereby, (ii) acknowledgement that the approval given is irrevocable and that such stockholder is aware of its rights to demand appraisal for its shares pursuant to Section 262 of the General Corporation Law of the State of Delaware ("DGCL"), and that such stockholder has received and read a copy of Section 262 of the DGCL and (iii) acknowledgement that by its approval of the merger it is not entitled to appraisal rights with respect to its shares in connection with the merger and thereby waives any rights to receive payment of the fair value of its capital stock under the DGCL.

**More information about Gemphire, NeuroBo and the merger is contained in this proxy statement/prospectus/information statement. Gemphire and NeuroBo urge you to read this proxy statement/prospectus/information statement carefully and in its entirety. IN PARTICULAR, YOU SHOULD CAREFULLY CONSIDER THE MATTERS DISCUSSED UNDER "RISK FACTORS" BEGINNING ON PAGE 30.**

Gemphire and NeuroBo are excited about the opportunities the merger brings to both Gemphire's and NeuroBo's stockholders, and thank you for your consideration and continued support.

Steven Gullans, Ph.D.
*President & Chief Executive Officer*
Gemphire Therapeutics Inc.

John L. Brooks, III
*President & Chief Executive Officer*
NeuroBo Pharmaceuticals, Inc.

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this proxy statement/prospectus/information statement. Any representation to the contrary is a criminal offense.**

The accompanying proxy statement/prospectus/information statement is dated , 2019, and is first being mailed to Gemphire's and NeuroBo's stockholders on or about , 2019.

# GEMPHIRE THERAPEUTICS INC.

**P.O. Box 130235**
**Ann Arbor, MI 48113**
**(734) 245-1700**

**NOTICE OF ANNUAL MEETING OF STOCKHOLDERS**
**TO BE HELD ON DECEMBER 4, 2019**

Dear Stockholders of Gemphire:

On behalf of the board of directors (the "Gemphire Board") of Gemphire Therapeutics Inc., a Delaware corporation ("Gemphire"), we are pleased to deliver this proxy statement/prospectus/information statement for the 2019 annual meeting of stockholders of Gemphire and for the proposed merger (the "merger") between Gemphire and NeuroBo Pharmaceuticals, Inc., a Delaware corporation ("NeuroBo"), pursuant to which GR Merger Sub Inc., a Delaware corporation and a wholly-owned subsidiary of Gemphire ("Merger Sub"), will merge with and into NeuroBo, with NeuroBo surviving as a wholly-owned subsidiary of Gemphire. The annual meeting of stockholders of Gemphire will be held on Friday, December 6, 2019 at 8:00 a.m., Eastern time, at 315 East Eisenhower Parkway, Suite 100, Ann Arbor, Michigan 48108 for the following purposes:

1. To approve the issuance of shares of common stock of Gemphire to stockholders of NeuroBo pursuant to the terms of the Agreement and Plan of Merger and Reorganization, dated as of July 24, 2019, by and among Gemphire, Merger Sub, and NeuroBo, as amended by the First Amendment to Agreement and Plan of Merger and Reorganization dated October 29, 2019, a copy of which is attached as *Annex A* to this proxy statement/prospectus/information statement (the "Merger Agreement"), and the change of control of Gemphire resulting from the merger under Nasdaq rules;

2. To approve an amendment to the third amended and restated certificate of incorporation of Gemphire (the "Gemphire Certificate of Incorporation") to effect a reverse stock split of Gemphire's common stock, within a range, as determined by the Gemphire Board, of one new share for every 15 to 25 (or any number in between) shares outstanding, in the form attached as *Annex B* to this proxy statement/prospectus/information statement;

3. To approve an amendment to the Gemphire Certificate of Incorporation to change the corporate name of Gemphire from "Gemphire Therapeutics Inc." to "NeuroBo Pharmaceuticals, Inc.", in the form attached as *Annex C* to this proxy statement/prospectus/information statement;

4. To approve the adoption of the Gemphire Therapeutics Inc. 2019 Equity Incentive Plan in the form attached as *Annex D* to this proxy statement/prospectus/information statement;

5. To elect two nominees for Class III directors named in the accompanying proxy statement/prospectus/information statement, each to serve a three-year term until the 2022 annual meeting of stockholders and until the election and qualification of his successor, or his earlier death, resignation or removal (provided that, if the merger is completed, the Gemphire Board will be reconstituted as provided in the Merger Agreement);

6. To ratify the appointment of Ernst & Young LLP as Gemphire's independent registered public accounting firm for the fiscal year ending December 31, 2019 (provided, however, that it is likely that the combined company may decide to engage a new independent registered public accounting firm immediately or shortly after the merger is completed);

7. To consider and vote upon an adjournment of the Gemphire annual meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of Proposal No. 1, 2, 3 or 4; and

8. To transact such other business as may properly come before the Gemphire annual meeting or any adjournment or postponement thereof.

The Gemphire Board has fixed October 31, 2019, as the record date for the determination of stockholders entitled to notice of, and to vote at, the Gemphire annual meeting and any adjournment or postponement thereof (the "Record Date"). Only holders of record of shares of Gemphire common stock at the close of business on the Record Date are entitled to notice of, and to vote at, the Gemphire annual meeting. At the close of business on the Record Date, Gemphire had 14,872,411 shares of common stock outstanding and entitled to vote.

**Your vote is important. The affirmative vote of the holders of a majority of the shares of Gemphire common stock present in person or represented by proxy at the Gemphire annual meeting and entitled to vote on the matter is required for approval of Proposal Nos. 1, 4, 6 and 7. The affirmative vote of the holders of a majority of the shares of Gemphire common stock outstanding on the Record Date for the Gemphire annual meeting and entitled to vote on the matter is required for approval of Proposal Nos. 2 and 3. Directors will be elected by a plurality of the votes of shares present in person or represented by proxy at the Gemphire annual meeting and entitled to vote on the election of directors.**

**Proposal No. 1 is conditioned upon the approval of Proposal No. 2, and the merger cannot be consummated without the approval of Proposal Nos. 1 and 2. Proposal Nos. 3 and 4 are conditioned upon the consummation of the merger. If the merger is not completed or the stockholders do not approve Proposal No. 3, Gemphire will not change its name to "NeuroBo Pharmaceuticals, Inc." If the merger is not completed or the stockholders do not approve Proposal No. 4, the Gemphire Therapeutics Inc. 2019 Equity Incentive Plan will not become effective. Proposal No. 1 is not conditioned on Proposal No. 3 or Proposal No. 4 being approved, and Proposals No. 2, 5 and 6 are not conditioned on any other proposal.**

**Even if you plan to attend the Gemphire annual meeting in person, Gemphire requests that you sign and return the enclosed proxy to ensure that your shares will be represented at the Gemphire annual meeting if you are unable to attend.**

**THE GEMPHIRE BOARD HAS DETERMINED AND BELIEVES THAT EACH OF THE PROPOSALS OUTLINED ABOVE IS ADVISABLE TO, AND IN THE BEST INTERESTS OF, GEMPHIRE AND ITS STOCKHOLDERS AND HAS APPROVED EACH SUCH PROPOSAL. THE GEMPHIRE BOARD RECOMMENDS THAT GEMPHIRE STOCKHOLDERS VOTE "FOR" EACH SUCH PROPOSAL.**

By Order of the Gemphire Board of Directors,

Steven Gullans, Ph.D.
*President and Chief Executive Officer*
Ann Arbor, Michigan

, 2019

## REFERENCES TO ADDITIONAL INFORMATION

This proxy statement/prospectus/information statement incorporates important business and financial information about Gemphire that is not included in or delivered with this document. You may obtain this information without charge through the SEC's website (http://www.sec.gov) or upon your written or oral request by contacting the Secretary of Gemphire Therapeutics Inc., P.O. Box 130235, Ann Arbor, MI 48113 or by calling (734) 245-1700.

**To ensure timely delivery of these documents, any request should be made no later than November 20, 2019 to receive them before the Gemphire annual meeting.**

For additional details about where you can find information about Gemphire, please see the section entitled "*Where You Can Find More Information*" in this proxy statement/prospectus/information statement.

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References to "*Gemphire*" and "*NeuroBo*" in this proxy statement/prospectus/information statement refer to Gemphire Therapeutics Inc. and NeuroBo Pharmaceuticals, Inc., respectively. References to the "*combined company*" refer to Gemphire and its wholly owned subsidiary, NeuroBo, after the merger. Except as otherwise noted, references to "*we*," "*us*" or "*our*" refer to both Gemphire and NeuroBo. References to "*Merger Sub*" refer to GR Merger Sub Inc., a newly formed, wholly-owned subsidiary of Gemphire.

References to the "*Merger Agreement*" refer to that certain agreement and plan of merger dated as of July 24, 2019 among Gemphire, Merger Sub and NeuroBo, as amended from time to time, including by the First Amendment to Agreement and Plan of Merger and Reorganization dated October 29, 2019. References to the "*merger*" refer to the merger of Merger Sub with and into NeuroBo, with NeuroBo surviving as the surviving entity and as a wholly owned subsidiary of Gemphire as contemplated under the Merger Agreement.

## QUESTIONS AND ANSWERS ABOUT THE MERGER

*Except where specifically noted, the following information and all other information contained in this proxy statement/prospectus/information statement gives effect to NeuroBo's 10,000-for-1 split of its common stock and preferred stock, which was effective on August 13, 2019, but does not give effect to the proposed reverse stock split described in the section entitled "Matters Being Submitted to a Vote of Gemphire Stockholders—Proposal No. 2: Approval of an Amendment to the Gemphire Certificate of Incorporation Effecting the Gemphire Reverse Stock Split" in this proxy statement/prospectus/information statement (the "Gemphire Reverse Stock Split").*

The following section provides answers to frequently asked questions about the merger. This section, however, provides only summary information. For a more complete response to these questions and for additional information, please refer to the cross-referenced sections.

***Q: What is the merger?***

**A:** Gemphire, Merger Sub and NeuroBo entered into the Agreement and Plan of Merger and Reorganization on July 24, 2019 (the "Original Merger Agreement"). On October 29, 2019, the parties entered into the First Amendment to Agreement and Plan of Merger and Reorganization (the "Merger Agreement Amendment," and together with the Original Merger Agreement, the "Merger Agreement"). The Merger Agreement contains the terms and conditions of the proposed business combination of Gemphire and NeuroBo. Under the Merger Agreement, Merger Sub will merge with and into NeuroBo, with NeuroBo surviving as a wholly owned subsidiary of Gemphire (the "merger").

At the effective time of the merger (the "Effective Time"), each share of NeuroBo common stock, $0.0001 par value per share ("NeuroBo common stock") outstanding immediately prior to the Effective Time (excluding certain shares to be canceled pursuant to the Merger Agreement and shares held by holders of NeuroBo common stock who have exercised and perfected appraisal rights or dissenters' rights as more fully described in the section entitled "*The Merger—Appraisal Rights and Dissenters' Rights*" in this proxy statement/prospectus/information statement) will be converted into the right to receive shares of Gemphire's common stock, $0.001 par value per share ("Gemphire common stock") at a ratio (the "Exchange Ratio") currently estimated to be 29.2911 shares of Gemphire common stock for each share of NeuroBo common stock. The Exchange Ratio is subject to change to account, among other things, for Gemphire's net cash at the Effective Time (the "Parent Cash Amount"), to the extent such amount is negative, or for the aggregate gross proceeds received by NeuroBo as of immediately prior to the closing of the merger (the "Closing") in its Pre-Closing Financing above the minimum required amount and up to and including $50 million. See the section entitled "—*What is the Pre-Closing Financing?*" below for additional information about the Pre-Closing Financing.

Because the Parent Cash Amount will not be determined until the Closing, and because, among other things, the number of shares of Gemphire common stock issuable to holders of NeuroBo common stock ("NeuroBo Stockholders") is determined based on the Parent Cash Amount and the capitalization of NeuroBo and Gemphire at the Effective Time, holders of Gemphire common stock ("Gemphire Stockholders") cannot be certain of the exact number of shares that will be issued to NeuroBo Stockholders when Gemphire Stockholders vote on the proposals at the 2019 annual meeting of Gemphire Stockholders (the "Gemphire annual meeting"). The Exchange Ratio referenced above is an estimate only and the final Exchange Ratio will be determined pursuant to a formula described in more detail in the Merger Agreement and in this proxy statement/prospectus/information statement.

As of the date of the execution of the Merger Agreement, it was estimated that as a result of the merger and based solely on the sample Exchange Ratio of 29.2911 set forth above, which is subject

to adjustment, current NeuroBo Stockholders and holders of options to purchase shares of NeuroBo common stock (each a "NeuroBo Option," each holder of a NeuroBo Option a "NeuroBo Optionholder" and, collectively with the NeuroBo Stockholders, "NeuroBo Securityholders") would own, or hold rights to acquire, in the aggregate approximately 96.26% of the fully diluted shares of the combined company (excluding out-of-the-money Gemphire Options canceled at the Effective Time pursuant to the Merger Agreement (the "Fully Diluted Closing Gemphire Common Stock"), and current Gemphire Stockholders, and holders of shares of Gemphire common stock received upon the automatic exercise, pursuant to the Merger Agreement, of any unexpired and unexercised option to purchase Gemphire common stock (each a "Gemphire Option," each holder of a Gemphire Option a "Gemphire Optionholder") having an exercise price per share less than the volume weighted average closing trading price of a share of Gemphire common stock on Nasdaq for the five consecutive trading days ending five trading days immediately prior to the date upon which the merger becomes effective (the "Gemphire Closing Price"), holders of warrants to purchase Gemphire common stock (each a "Gemphire Warrant," each holder of a Gemphire Warrant a "Gemphire Warrantholders", and collectively with the Gemphire Stockholders and Gemphire Optionholders, "Gemphire Securityholders) would own, or hold rights to acquire, in the aggregate approximately 3.74% of the Fully Diluted Gemphire Closing Common Stock, in each case, following the Effective Time and assuming a Parent Cash Amount of negative $3.4 million and Pre-Closing Financing for gross proceeds of $24.24 million. After the consummation of the merger, and assuming Gemphire Stockholders approve Proposal No. 3, Gemphire will change its corporate name to "NeuroBo Pharmaceuticals, Inc." as required by the Merger Agreement (the "Gemphire Name Change").

**Q:** ***What will happen to Gemphire if, for any reason, the merger does not close?***

**A:** If, for any reason, the merger does not close, the Gemphire board of directors (the "Gemphire Board") may elect to dissolve and liquidate its assets. If Gemphire were able to secure additional capital to provide it with necessary financial resources, it may alternatively attempt to pursue another strategic transaction like the merger, sell or otherwise dispose of its assets or continue to operate its business. Gemphire expects that it would be difficult to secure financing in a timely manner, on favorable terms or at all. If Gemphire decides to dissolve and liquidate its assets, Gemphire would be required to pay all of its debts and contractual obligations, and to set aside certain reserves for potential future claims, and there can be no assurances as to the amount or timing of available cash left, if any, to distribute to stockholders after paying the debts and other obligations of Gemphire and setting aside funds for reserves.

**Q:** ***Why are the two companies proposing to merge?***

**A:** NeuroBo and Gemphire believe that the merger will result in a clinical-stage biotechnology company focused on novel, disease-modifying therapies for neurodegenerative diseases. For a discussion of Gemphire's and NeuroBo's reasons for the merger, please see the section entitled *"The Merger—Gemphire Reasons for the Merger"* and *"The Merger—NeuroBo Reasons for the Merger"* in this proxy statement/prospectus/information statement.

**Q:** ***Why am I receiving this proxy statement/prospectus/information statement?***

**A:** You are receiving this proxy statement/prospectus/information statement because you have been identified as a Gemphire Stockholder or a NeuroBo Stockholder as of the applicable record date, and you are entitled, as applicable, to (i) notice of, and to vote at, the Gemphire annual meeting or (ii) sign and return the NeuroBo written consent. This document serves as:

- a proxy statement of Gemphire used to solicit proxies for the Gemphire annual meeting;

- a prospectus of Gemphire used to offer shares of Gemphire common stock in exchange for shares of NeuroBo common stock in the merger and issuable upon exercise Neurobo Options; and

- an information statement of NeuroBo used to solicit the written consent of NeuroBo Stockholders for the adoption of the Merger Agreement and the approval of the merger and related transactions.

**Q:** ***What is required to consummate the merger?***

**A:** To consummate the merger, Gemphire Stockholders must approve the issuance of Gemphire common stock to NeuroBo Stockholders pursuant to the Merger Agreement and the change of control of Gemphire resulting from the merger under Nasdaq rules (Proposal No. 1) and the Gemphire Reverse Stock Split (Proposal No. 2) and NeuroBo Stockholders must adopt the Merger Agreement, thereby approving the merger and the related transactions, including the Convertible Note Conversion.

The approval of the Gemphire Reverse Stock Split (Proposal No. 2) is required in order to allow the issuance of the shares of Gemphire common stock pursuant to the Merger Agreement and to avoid a delisting of Gemphire common stock from the Nasdaq Capital Market. Consequently, if the requisite Gemphire Stockholders approve Proposal No. 1 but do not approve Proposal No. 2, the merger will not be consummated.

The adoption of the Merger Agreement and the approval of the merger and related transactions by the NeuroBo Stockholders requires the affirmative vote (or written consent) of the holders of a majority of the shares of NeuroBo common stock and NeuroBo preferred stock, on an as-converted to NeuroBo common stock basis, each outstanding on the record date and entitled to vote thereon, the holders of at least two-thirds of the outstanding shares of NeuroBo preferred stock, together as a single class, on an as-converted to NeuroBo common stock basis, and, with respect to the Convertible Note Conversion only, the holders at least a majority of the outstanding shares of NeuroBo's Series A Preferred Stock.

As of September 30, 2019, certain NeuroBo directors, officers, and holders of 5% or more of NeuroBo capital stock who in the aggregate own approximately 90% of the outstanding shares of NeuroBo capital stock on an as converted to common stock basis and certain Gemphire Stockholders who in the aggregate own approximately 26% of the outstanding shares of Gemphire common stock are parties to voting agreements with Gemphire and NeuroBo, whereby such stockholders have agreed to vote their shares in favor of the adoption or approval, as applicable, of the Merger Agreement and the transactions contemplated therein or the issuance of Gemphire common stock to NeuroBo Stockholders pursuant to the Merger Agreement, subject to the terms of the voting agreements. In addition, following the registration statement on Form S-4, of which this proxy statement/prospectus/information statement is a part, being declared effective by the U.S. Securities and Exchange Commission (the "SEC") and pursuant to the conditions of the Merger Agreement and the voting agreements, NeuroBo Stockholders who are party to the voting agreements will each execute written consents approving the merger and related transactions. Therefore, holders of a sufficient number of shares of NeuroBo capital stock required to adopt the Merger Agreement, thereby approving the merger, have agreed to adopt the Merger Agreement via written consent. NeuroBo Stockholders, including those who are parties to voting agreements, are being requested to execute written consents providing such approvals.

For a more complete description of the closing conditions under the Merger Agreement, please see the section entitled *"The Merger Agreement—Conditions to the Completion of the Merger"* in this proxy statement/prospectus/information statement.

**Q:** ***What proposals are to be voted on at the Gemphire annual meeting, other than the proposals required in connection with the merger?***

**A:** At the Gemphire annual meeting, the Gemphire Stockholders will also be asked to consider the following proposals, along with any other business that may properly come before the Gemphire annual meeting or any adjournment or postponement thereof:

- Proposal No. 3 to approve an amendment to the certificate of incorporation of Gemphire changing the Gemphire corporate name to "NeuroBo Pharmaceuticals, Inc." in the form attached as *Annex C*;
- Proposal No. 4 to approve the Gemphire 2019 Equity Incentive Plan (the "Gemphire 2019 Plan"), a copy of which is attached as *Annex D*;
- Proposal No. 5 to elect two nominees for Class III directors to hold office until the 2022 annual meeting of stockholders and until the election and qualification of his successor, or his earlier death, resignation or removal (provided that, if the merger is completed, the Gemphire Board will be reconstituted as provided in the Merger Agreement);
- Proposal No. 6 to ratify the appointment of Ernst & Young LLP as Gemphire's independent registered public accounting firm for the fiscal year ending December 31, 2019 (provided, however, that it is likely that the combined company may decide to engage a new independent registered public accounting firm immediately or shortly after the merger is completed); and
- Proposal No. 7 to approve an adjournment of the Gemphire annual meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of Proposal Nos. 1, 2, 3 or 4.

Gemphire Stockholders should understand that if the merger is completed, the effect of the approval of Proposal Nos. 5 and 6 will be limited since the composition of the Gemphire Board will be changed upon completion of the merger in accordance with the Merger Agreement and the combined organization may decide to engage a new independent registered public accounting firm immediately or shortly after completion of the merger.

**Q:** ***What stockholder votes are required to approve the proposals required in connection with the merger at the Gemphire annual meeting?***

Approval of Proposal No. 1 requires the affirmative vote of the holders of a majority of the shares of Gemphire common stock present in person or represented by proxy at the Gemphire annual meeting and entitled to vote on the matter. Approval of Proposal No. 2 requires the affirmative vote of holders of a majority of Gemphire common stock outstanding on the record date, October 31, 2019, for the Gemphire annual meeting (the "Record Date") and entitled to vote on the matter.

Votes will be counted by the inspector of election appointed for the Gemphire annual meeting, who will separately count "FOR" and "AGAINST" votes, abstentions and broker non-votes. Abstentions will be counted towards the vote total and will have the same effect as "AGAINST" votes for Proposal Nos. 1, 2, 3, 4, 6, and 7. Proposal Nos. 2, 3, 6, and 7 are matters on which Gemphire expects brokers, banks or other nominees to have authority and, therefore, broker non-votes are not expected with respect to these proposals. Broker non-votes will have no effect on the outcome of Proposal Nos. 1, 4, and 5.

**Q:** ***What will NeuroBo Securityholders receive in the merger?***

**A:** Gemphire and NeuroBo currently estimate that Exchange Ratio at Closing will be approximately 29.2911, assuming a closing date of December 31, 2019 and that (i) the Parent Cash Amount will be negative $3.4 million as of Closing, (ii) the Pre-Closing Financing amount will be approximately

$24.24 million, (iii) outstanding shares of Gemphire common stock as of the Closing will be equal to 14,872,411 (on a pre-Gemphire Reverse Stock Split basis) and (iv) outstanding shares of NeuroBo common stock and NeuroBo Options as of the Closing (giving effect to the Preferred Stock Conversion and Convertible Note Conversion) will be equal to 13,959,520. Based solely on such Exchange Ratio, at Closing: NeuroBo Securityholders immediately prior to the merger will own, or hold rights to acquire, in the aggregate approximately 96.26% of the Fully Diluted Closing Gemphire Common Stock and the Gemphire Securityholders immediately prior to the merger (excluding out-of-the-money Gemphire Options cancelled at the Effective Time pursuant to the Merger Agreement) will own, or hold rights to acquire, in the aggregate approximately 3.74% of the Fully Diluted Closing Gemphire Common Stock.

Following the Effective Time, NeuroBo Optionholders will have their NeuroBo Options converted into options to purchase shares of Gemphire common stock, with the number of shares of Gemphire common stock subject to each such option and the exercise price being appropriately adjusted to reflect the Exchange Ratio.

The Exchange Ratio is calculated using a formula intended to allocate a percentage of the combined organization to existing NeuroBo Securityholders, and is subject to change as set forth in the Merger Agreement and as described herein (and as a result, Gemphire Securityholders and NeuroBo Securityholders could own more or less of the combined organization than currently anticipated).

Prior to the Effective Time, the outstanding shares of NeuroBo preferred stock and the outstanding NeuroBo convertible notes will be converted into NeuroBo common stock.

For a more complete description of what NeuroBo Securityholders will receive in the merger, please see the sections entitled *"The Merger—Merger Consideration and Exchange Ratio"* in this proxy statement/prospectus/information statement.

***Q:*** ***What will Gemphire Stockholders, Gemphire Optionholders and Gemphire Warrant holders receive in the merger?***

**A:** At the Effective Time, Gemphire Stockholders will continue to own and hold their existing shares of Gemphire common stock.

Each outstanding and unexercised Gemphire Option having an exercise price per share less than the Gemphire Closing Price will be automatically exercised in full and, in exchange therefor, each former holder of any such automatically exercised Gemphire Option will be entitled to receive a number of shares of Gemphire common stock calculated by dividing (a) the product of (i) the total number of shares of Gemphire common stock previously subject to such Gemphire Option, and (ii) the excess of the Gemphire Closing Price over the exercise price per share of the Gemphire common stock previously subject to such Gemphire Option by (b) the Gemphire Closing Price. Each outstanding and unexercised Gemphire Option that has an exercise price equal to or greater than the Gemphire Closing Price will be terminated and cease to exist for no consideration.

The terms governing Gemphire Warrants will remain in full force and effect following the Closing of the merger.

In addition, Gemphire Stockholders as of immediately prior to the Effective Time will receive one contingent value right ("CVR") for each share of Gemphire common stock held of record as of immediately prior to the Effective Time. Each CVR will represent the right to receive certain cash payments in the event rights to Gemphire's product candidate gemcabene are sold or licensed during a certain period. In particular, CVR holders will be entitled to, in the aggregate, 80% of the Gross Consideration (as defined in the CVR Agreement, as defined below, which contemplates the post-merger combined company's prior retention of an aggregate of $500,000) less other

Permitted Deductions (as defined in the CVR Agreement) received during the 15-year period after the Closing (the "CVR Term") from the grant, sale or transfer of rights to gemcabene (other than a grant, sale or transfer of rights involving a sale or disposition of the post-merger combined company) that is entered into during the 10-year period after the Closing or pursuant to the License and Collaboration Agreement (the "Beijing SL License Agreement") with Beijing SL Pharmaceutical Co., Ltd. ("Beijing SL"), but not including the $2.5 million upfront gross payment pursuant to the Beijing SL License Agreement). The CVRs will be issued pursuant to a Contingent Value Rights Agreement (the "CVR Agreement") and Grand Rapids Holders' Representative, LLC (an entity controlled by the three current executive officers of Gemphire) will act as representative of holders of the CVRs. The post-merger combined company has agreed to commit limited resources for a limited period to continue the development of gemcabene under the CVR Agreement. See the section entitled "*Agreements Related to the Merger—Contingent Value Rights Agreement*" in this proxy statement/prospectus/information statement.

**Q:** ***Who will be the directors of Gemphire following the merger?***

**A:** Following the consummation of the merger, the size of the Gemphire Board will be increased to include a total of ten directors. Pursuant to the terms of the Merger Agreement, the Gemphire Board will be reconstituted such that nine of the initial post-Closing directors will be designated by NeuroBo, and one initial post-Closing director will be designated by Gemphire. It is currently anticipated that, following the Closing, the Gemphire Board will be constituted as follows:

| | |
|---|---|
| John L. Brooks, III | NeuroBo Pharmaceuticals, Inc., President, Chief Executive Officer and Director |
| Na Yeon (Irene) Kim | NeuroBo Pharmaceuticals, Inc., Director |
| Jeong Gyun Oh | NeuroBo Pharmaceuticals, Inc., Director |
| Roy Freeman, M.D. | NeuroBo Pharmaceuticals, Inc., Director |
| Steven Gullans, Ph.D. | Gemphire Therapeutics Inc., President, Chief Executive Officer and Director |
| Alice C. Brennan | To be designated by NeuroBo Pharmaceuticals, Inc. |
| Steven Prelack | To be designated by NeuroBo Pharmaceuticals, Inc. |
| Michael C. Ferrara | To be designated by NeuroBo Pharmaceuticals, Inc. |
| Michael R. Jacobson | To be designated by NeuroBo Pharmaceuticals, Inc. |
| Tae Heum (Ted) Jeong | To be designated by NeuroBo Pharmaceuticals, Inc. |

***Q:*** ***Who will be the executive officers of Gemphire immediately following the merger?***

**A:** Immediately following the consummation of the merger, the executive management team of Gemphire is expected to be composed solely of the members of NeuroBo's executive management team prior to the merger, as follows:

| Name | Title |
|---|---|
| John L. Brooks, III | President, Chief Executive Officer and Interim Chief Financial Officer |
| Mark Versavel, M.D., Ph.D., M.B.A. | Chief Medical Officer |
| Nandan Padukone, Ph.D., M.B.A. | Senior Vice President, Business Development |
| Nicola Shannon | Vice President, Clinical Operations |

***Q:*** ***What are the material U.S. federal income tax consequences of the merger?***

A: In the opinion of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. ("Mintz"), counsel to NeuroBo, and subject to the Tax Opinion Representations and Assumptions, the merger will qualify as either a tax-free contribution pursuant to Section 351 of the Internal Revenue Code of 1986, as amended (the "Code") or a "reorganization" within the meaning of Section 368(a) of the Code. Subject to the limitations and qualifications described in the section entitled "*The Merger—Material U.S. Federal Income Tax Consequences of the Merger*," a U.S. Holder of NeuroBo common stock generally will not recognize any gain or loss for U.S. federal income tax purposes on the exchange of shares of NeuroBo common stock for shares of Gemphire common stock in the merger, except with respect to cash received by such U.S. Holder of NeuroBo common stock in lieu of a fractional share of Gemphire common stock. If any of the Tax Opinion Representations and Assumptions is incorrect, incomplete or inaccurate or is violated, the accuracy of the opinion described above may be affected and the U.S. federal income tax consequences of the merger could differ from those described in this proxy statement/prospectus/information statement.

Please review the information in the section entitled "*The Merger—Material U.S. Federal Income Tax Consequences of the Merger*" for a more complete description of the material U.S. federal income tax consequences of the merger to U.S. Holders of NeuroBo common stock. The tax consequences to you of the merger will depend on your particular facts and circumstances. You should consult your tax advisors as to the specific tax consequences to you of the merger.

***Q:*** ***What are the material U.S. federal income tax consequences of the receipt of CVRs and the Gemphire Reverse Stock Split to Gemphire U.S. Holders?***

A: In the opinion of Honigman LLP, Gemphire's legal counsel, based on the facts, representations and assumptions set forth herein, the issuance of the CVRs to Gemphire U.S. Holders under the terms expressed in the form of the CVR Agreement included in *Annex A* to this proxy statement/prospectus/information statement is more likely than not to be treated as a distribution of property with respect to Gemphire common stock. Please review the information in the section entitled "*Agreements Related to the Merger—Contingent Value Rights Agreement—Material U.S. Federal Income Tax Consequences of the Receipt of CVRs*" for a more complete description of the material U.S. federal income tax consequences of the receipt of CVRs to Gemphire U.S. Holders, including possible alternative treatments. A Gemphire U.S. Holder generally should not recognize gain or loss upon the Gemphire Reverse Stock Split, except to the extent a Gemphire U.S. Holder receives cash in lieu of a fractional share of Gemphire common stock. Please review the information in the section entitled "*Proposal No. 2: Approval of an Amendment to the Gemphire Certificate of Incorporation Effecting the Gemphire Reverse Stock Split—Material U.S. Federal Income Tax*

*Consequences of the Gemphire Reverse Stock Split*" for a more complete description of the material U.S. federal income tax consequences of the Gemphire Reverse Stock Split to Gemphire U.S. Holders.

The tax consequences to you of the receipt of CVRs and the Gemphire Reverse Stock Split will depend on your particular facts and circumstances. You should consult your tax advisors as to the specific tax consequences to you.

**Q:** ***What is the Pre-Closing Financing?***

**A:** Prior to signing the Merger Agreement, NeuroBo entered into subscription agreements with investors for a Series B Preferred Stock financing pursuant to which NeuroBo issued and sold 3,030,000 shares of NeuroBo Series B Preferred Stock at a price of $8.00 per share and received approximate gross proceeds of $24,240,000, the minimum required amount under the Merger Agreement. NeuroBo may enter into additional subscription agreements and receive additional proceeds between signing and closing of the merger (the "Pre-Closing Financing"). The securities of NeuroBo issued in the Pre-Closing Financing were or will be issued pursuant to an exemption from the registration requirements of the Securities Act of 1933, as amended. Neither the Gemphire Stockholders nor the NeuroBo Stockholders are being asked to vote on the Pre-Closing Financing. Shares of NeuroBo's Series B Preferred Stock that are issued in the Pre-Closing Financing will be converted into shares of NeuroBo common stock on a one-to-one basis pursuant to the Preferred Stock Conversion, and into shares of Gemphire common stock in the merger. As of September 30, 2019, there were 3,030,000 shares of NeuroBo's Series B Preferred Stock outstanding (which share figure has been adjusted to reflect a 10,000-for-1 split of the NeuroBo common stock and NeuroBo preferred stock effected on August 13, 2019). Accordingly, by approving Proposal No. 1 relating to the merger, Gemphire Stockholders will also be approving the issuance of shares of Gemphire common stock to be issued in exchange for all shares of NeuroBo common stock issued upon conversion of NeuroBo's Series B Preferred Stock sold in the Pre-Closing Financing.

**Q:** ***As a Gemphire Stockholder, how does the Gemphire Board recommend that I vote?***

**A:** After careful consideration, the Gemphire Board recommends that Gemphire Stockholders vote "FOR" all of the proposals described in this proxy statement/prospectus/information statement.

**Q:** ***As a NeuroBo Stockholder, how does the board of directors of NeuroBo (the "NeuroBo Board") recommend that I vote?***

**A:** After careful consideration, the NeuroBo Board recommends that NeuroBo Stockholders execute the written consent to approve the merger, the Merger Agreement, and the transactions contemplated therein, substantially in accordance with the terms of the Merger Agreement and the other agreements contemplated by the Merger Agreement.

**Q:** ***What risks should I consider in deciding whether to vote in favor of the merger or to execute and return the written consent, as applicable?***

**A:** You should carefully review the section entitled "Risk Factors" in this proxy statement/prospectus/information statement which sets forth certain risks and uncertainties related to the merger, risks and uncertainties to which the combined organization's business will be subject, and risks and uncertainties to which each of Gemphire and NeuroBo, as independent companies, are subject.

**Q:** ***Who can vote at the Gemphire annual meeting?***

**A:** Only Gemphire Stockholders of record at the close of business on the Record Date will be entitled to vote at the Gemphire annual meeting. As of October 31, 2019, there were 14,872,411 shares of Gemphire common stock outstanding and entitled to vote.

***Stockholder of Record: Shares Registered in Your Name***

If, at the close of business on the Record Date, your shares of Gemphire common stock were registered directly in your name with Gemphire's transfer agent, Computershare Trust Company, N.A., then you are a Gemphire Stockholder of record. As a Gemphire Stockholder of record, you may vote in person at the Gemphire annual meeting or vote by proxy. Whether or not you plan to attend the Gemphire annual meeting, please vote as soon as possible by completing and returning the enclosed proxy card or vote by proxy over the telephone or on the internet as instructed on the proxy card to ensure your vote is counted.

***Beneficial Owner: Shares Registered in the Name of a Broker or Bank***

If, at the close of business on the Record Date, your shares of Gemphire common stock were not held in your name, but rather in an account at a brokerage firm, bank, dealer or other similar organization, then you are the beneficial owner of shares held in "street name" and these proxy materials are being forwarded to you by that organization. The organization holding your account is considered to be the stockholder of record for purposes of voting at the Gemphire annual meeting. As a beneficial owner, you have the right to direct your broker or other agent how to vote the shares in your account. You are also invited to attend the Gemphire annual meeting. However, because you are not the stockholder of record, you may not vote your shares in person at the Gemphire annual meeting unless you request and obtain a valid legal proxy from your broker or other agent, giving you the right to vote the shares at the meeting.

**Q:** ***How many votes do I have?***

**A:** On each matter to be voted upon, you have one vote for each share of Gemphire common stock you own as of the Record Date.

**Q:** ***What is the quorum requirement?***

**A:** A quorum of Gemphire Stockholders is necessary to hold a valid meeting. A quorum will be present if Gemphire Stockholders holding at least a majority of the outstanding shares of Gemphire common stock entitled to vote at the Gemphire annual meeting are present in person or represented by proxy at the Gemphire annual meeting. On October 31, 2019, there were 14,872,411 shares of Gemphire common stock outstanding and entitled to vote. Accordingly, Gemphire expects that the holders of at least 7,436,206 shares of Gemphire common stock must be present at the Gemphire annual meeting for a quorum to exist. Your shares of Gemphire common stock will be counted toward the quorum at the Gemphire annual meeting only if you attend the Gemphire annual meeting in person or are represented at the Gemphire annual meeting by proxy.

Abstentions and broker non-votes will be counted towards the quorum requirement. If there is no quorum, the holders of a majority of shares present and entitled to vote at the meeting in person or represented by proxy may adjourn the Gemphire annual meeting to another date.

**Q:** ***What are "broker non-votes"?***

**A:** If you hold shares beneficially in street name and do not provide your broker or other agent with voting instructions, your shares may constitute "broker non-votes." Broker non-votes occur on a

matter when banks, brokers and other nominees are not permitted to vote on certain non-discretionary matters without instructions from the beneficial owner and instructions are not given. These matters are referred to as "non-routine" matters. Proposal Nos. 1, 4 and 5 are anticipated to be non-routine matters, and Proposal Nos. 2, 3, 6 and 7 are anticipated to be routine matters. Broker non-votes will have no effect on the outcome of Proposal Nos. 1, 4, and 5.

**Q:** ***When do you expect the merger to be consummated?***

**A:** Gemphire and NeuroBo anticipate that the merger will occur sometime soon after the Gemphire annual meeting to be held on December 6, 2019, but the companies cannot predict the exact timing. For more information, please see the section entitled *"The Merger Agreement—Conditions to the Completion of the Merger"* in this proxy statement/prospectus/information statement.

**Q:** ***What do I need to do now?***

**A:** Gemphire and NeuroBo urge you to read this proxy statement/prospectus/information statement carefully, including its annexes, and to consider how the merger affects you.

If you are a Gemphire Stockholder of record, you may provide your proxy instructions in one of two different ways. First, you can mail your signed proxy card in the enclosed return envelope. You may also provide your proxy instructions via telephone or via the Internet by following the instructions on your proxy card or voting instruction form. Please provide your proxy instructions only once, unless you are revoking a previously delivered proxy instruction, and as soon as possible so that your shares can be voted at the Gemphire annual meeting.

If you are a NeuroBo Stockholder, you may execute and return your written consent to NeuroBo in accordance with the instructions provided.

**Q:** ***What happens if I do not return a proxy card or otherwise provide proxy instructions, as applicable?***

**A:** If you are a Gemphire Stockholder, the failure to return your proxy card or otherwise provide proxy instructions will have the same effect as voting "AGAINST" Proposal Nos. 2 and 3.

**Q:** ***When and where is the Gemphire annual meeting and may I vote in person?***

**A:** The Gemphire annual meeting will be held at 315 East Eisenhower Parkway, Suite 100, Ann Arbor, Michigan 48108, at 8:00 a.m., Eastern time, on Friday, December 6, 2019. Subject to space availability, all Gemphire Stockholders as of the Record Date, or their duly appointed proxies, may attend the Gemphire annual meeting. Since seating is limited, admission to the Gemphire annual meeting will be on a first-come, first-served basis. Registration and seating will begin at 7:30 a.m., Eastern time. If your shares of Gemphire common stock are registered directly in your name with Gemphire's transfer agent, you are considered to be the stockholder of record with respect to those shares, and the proxy materials and proxy card are being sent directly to you by Gemphire. If you are a stockholder of record, you may attend the Gemphire annual meeting and vote your shares in person. Even if you plan to attend the Gemphire annual meeting in person, Gemphire requests that you sign and return the enclosed proxy to ensure that your shares will be represented at the Gemphire annual meeting if you become unable to attend. If your shares of Gemphire common stock are held in a brokerage account or by another nominee, you are considered the beneficial owner of shares held in "street name," and the proxy materials are being forwarded to you by your broker or other nominee together with a voting instruction card. As the beneficial owner, you are also invited to attend the Gemphire annual meeting. Because a beneficial owner is not the stockholder of record, you may not vote these shares in person at the Gemphire annual meeting unless you obtain a proxy from the broker, trustee or nominee that holds your shares, giving you the right to vote the shares at the Gemphire annual meeting.

**Q:** ***If my Gemphire shares are held in "street name" by my broker, will my broker vote my shares for me?***

**A:** Unless your broker has discretionary authority to vote on certain matters, your broker will not be able to vote your shares of Gemphire common stock without instructions from you. Brokers are not expected to have discretionary authority to vote for any of the proposals other than Proposal Nos. 2, 3, 6 and 7. To make sure that your vote is counted, you should instruct your broker to vote your shares, following the procedures provided by your broker.

**Q:** ***May I change my vote after I have submitted a proxy or provided proxy instructions?***

**A:** Gemphire Stockholders of record, other than those Gemphire Stockholders who are parties to voting agreements, may change their vote at any time before their proxy is voted at the Gemphire annual meeting in one of three ways. First, a Gemphire Stockholder of record can send a written notice to the Secretary of Gemphire stating that it would like to revoke its proxy. Second, a Gemphire Stockholder of record can submit new proxy instructions either on a new proxy card or via telephone or the Internet. Third, a Gemphire Stockholder of record can attend the Gemphire annual meeting and vote in person. Attendance alone will not revoke a proxy. If a Gemphire Stockholder who owns shares of Gemphire common stock in "street name" has instructed a broker to vote its shares of Gemphire common stock, the stockholder must follow directions received from its broker to change those instructions.

**Q:** ***Who is paying for this proxy solicitation?***

**A:** Gemphire and NeuroBo will share equally the cost of printing and filing this proxy statement/prospectus/information statement and the proxy card. Arrangements will also be made with brokerage firms and other custodians, nominees and fiduciaries who are record holders of Gemphire common stock for the forwarding of solicitation materials to the beneficial owners of Gemphire common stock. Gemphire will reimburse these brokers, custodians, nominees and fiduciaries for the reasonable out-of-pocket expenses they incur in connection with the forwarding of solicitation materials.

Gemphire has engaged The Proxy Advisory Group, LLC to assist in the solicitation of proxies and provide related advice and informational support, for a services fee and the reimbursement of customary disbursements, which are not expected to exceed $20,000 in total.

**Q:** ***Who can help answer my questions?***

**A:** If you are a Gemphire Stockholder and would like additional copies, without charge, of this proxy statement/prospectus/information statement or if you have questions about the merger, including the procedures for voting your shares, you should contact:

Gemphire Therapeutics Inc.
P.O. Box 130235
Ann Arbor, MI 48113
Telephone: (734) 245-1700
Attn: Secretary

If you are a NeuroBo Stockholder, and would like additional copies, without charge, of this proxy statement/prospectus/information statement or if you have questions about the merger, including the procedures for voting your shares, you should contact:

NeuroBo Pharmaceuticals, Inc.
177 Huntington Avenue, Suite 1700
Boston, MA 02115
(617) 313-7331
Attn: Secretary

## PROSPECTUS SUMMARY

*This summary highlights selected information from this proxy statement/prospectus/information statement and may not contain all of the information that is important to you. To better understand the merger, the proposals being considered at the Gemphire annual meeting and NeuroBo's stockholder actions that are the subject of the written consent, you should read this entire proxy statement/prospectus/information statement carefully, including the Merger Agreement attached as Annex A, the opinion of Ladenburg Thalmann & Co. Inc. attached as Annex E and the other annexes to which you are referred herein. For more information, please see the section entitled "Where You Can Find More Information" in this proxy statement/prospectus/information statement.*

**The Companies**

***Gemphire Therapeutics Inc.***
P.O. Box 130235
Ann Arbor, Michigan 48113
(734) 245-1700

Gemphire is a clinical-stage biopharmaceutical company focused on developing and commercializing therapies for the treatment of dyslipidemia, a serious medical condition that increases the risk of life-threatening cardiovascular disease, focused on orphan indications, as well as nonalcoholic fatty liver disease (NAFLD/NASH). Gemphire's product candidate, gemcabene, has been tested as monotherapy and in combination with statins and other drugs in multiple Phase 1 and Phase 2 clinical trials.

***NeuroBo Pharmaceuticals, Inc.***
177 Huntington Avenue, Suite 1700
Boston, MA 02115
(617) 313-7331

NeuroBo is a clinical-stage biotechnology company focused on developing novel pharmaceuticals to treat neurodegenerative disorders affecting millions of patients worldwide. NeuroBo is focused on the development of a treatment for painful diabetic neuropathy (PDN), with its lead product candidate, NB-01, expected to commence Phase 3 clinical development as a first-line pain management therapy for PDN in the first quarter of 2020. NeuroBo believes that NB-01 could also treat a range of neuropathic conditions, including chemotherapy-induced peripheral neuropathy and post-traumatic peripheral neuropathy. NeuroBo's second product candidate, NB-02, has the potential to treat the symptoms of cognitive impairment and modify the clinical progression of neurodegenerative diseases associated with the misfunction of a protein called tau, and with amyloid beta plaque deposition. NB-02 is ready for the submission of an investigational new drug application, or IND, to the Food and Drug Administration, or FDA. NeuroBo believes that leveraging the therapeutic advantages of its pipeline will drive a paradigm shift in the treatment of PDN, peripheral neuropathy and other neurodegenerative diseases.

***GR Merger Sub Inc.***

Merger Sub is a wholly-owned subsidiary of Gemphire, formed solely for the purposes of carrying out the merger.

**The Merger** (see page 142)

If the merger is completed, Merger Sub will merge with and into NeuroBo, with NeuroBo surviving as a wholly-owned subsidiary of Gemphire.

Prior to the Effective Time, the outstanding shares of NeuroBo preferred stock and the outstanding NeuroBo convertible notes will be converted into NeuroBo common stock.

At the Effective Time, each share of NeuroBo common stock outstanding immediately prior to the Effective Time (excluding certain shares to be canceled pursuant to the Merger Agreement, and shares held by stockholders who have exercised and perfected appraisal rights as more fully described in the section entitled *"The Merger—Appraisal Rights and Dissenters' Rights*" below) will be converted into the right to receive approximately 29.2911 shares of Gemphire common stock, subject to adjustment for the Gemphire Reverse Stock Split. This Exchange Ratio is an estimate only and the final Exchange Ratio will be determined pursuant to a formula described in more detail in the Merger Agreement and in this proxy statement/prospectus/information statement. Applying an Exchange Ratio of 29.2911, the Gemphire Securityholders immediately prior to the merger are expected to own, or hold rights to acquire, in the aggregate approximately 3.74% of the Fully Diluted Closing Gemphire Common Stock and NeuroBo Securityholders immediately prior to the merger are expected to own, or hold rights to acquire, in the aggregate approximately 96.26% of the Fully Diluted Closing Gemphire Common Stock, in each case, immediately following the merger and assuming a Parent Cash Amount of negative $3.4 million and that NeuroBo raises the minimum required amount of $24,240,000 in its Pre-Closing Financing. The Exchange Ratio is subject to adjustment as set forth in the Merger Agreement and described herein (and as a result, Gemphire Securityholders and NeuroBo Securityholders could own more or less of the combined organization than currently anticipated).

For a more complete description of the Exchange Ratio please see the section entitled "*The Merger Agreement*" in this proxy statement/prospectus/information statement.

The Closing of the merger will occur no later than the third business day after the last of the conditions to the merger has been satisfied or waived (other than those conditions that by their nature are to be satisfied at the Closing, but subject to the satisfaction or waiver of each such condition), or at such other time as Gemphire and NeuroBo agree. Gemphire and NeuroBo anticipate that the consummation of the merger will occur in the fourth quarter of the fiscal year. However, because the merger is subject to a number of conditions, neither Gemphire nor NeuroBo can predict exactly when the Closing will occur or if it will occur at all. After completion of the merger, assuming that Gemphire receives the required stockholder approval of Proposal No. 3, Gemphire will be renamed "NeuroBo Pharmaceuticals, Inc."

**Reasons for the Merger** (see page 156)

Following the merger, the combined company will be a clinical-stage biotechnology company focused on the development of drug candidates for the treatment of neurodegenerative diseases. Gemphire and NeuroBo believe that the combined organization will have the following potential advantages:

- Phase 3 Ready Lead Product Candidate. NeuroBo is focused on the development of a treatment for painful diabetic neuropathy (PDN), with its lead product candidate, NB-01, expected to commence Phase 3 clinical development as a first-line, disease-modifying therapy in the first quarter of 2020. NeuroBo's second product candidate, NB-02, is in development for the treatment of neurodegenerative diseases associated with the pathological dysfunction of the amyloid-beta and tau proteins in the human brain, which include Alzheimer's disease and tauopathies.

- Management Team. It is expected that the combined organization will be led by the experienced senior management from NeuroBo and a board of directors with representation from each of Gemphire and NeuroBo.

- Cash Resources. The combined organization is expected to have sufficient cash at the Closing for the combined company to sustain its operations through July 2020 and the combined company's public company structure will provide it with access to the public market to raise additional funds in the future.

Each of the Gemphire Board and NeuroBo Board also considered other reasons for the merger, as described herein. For example, the Gemphire Board considered, among other things:

- the strategic alternatives to the merger available to Gemphire, including the discussions that Gemphire's management and the Gemphire Board previously conducted with other potential merger partners;
- the risks of continuing to operate Gemphire on a stand-alone basis, including uncertainty regarding the potential results from the preclinical studies, uncertainty regarding the future costs and timeline to support a Phase 3 clinical program of gemcabene, the likelihood of success in conducting a Phase 3 trial and obtaining an NDA, and the need to raise significant additional financing for future clinical and commercial development of gemcabene; and
- the opportunity as a result of the merger for Gemphire Stockholders to participate in the potential growth of the combined company following the merger, while potentially receiving certain cash payments from the grant, sale or transfer of rights to gemcabene during a certain period following the closing of the merger on account of the CVR Agreement to be executed at the Effective Time.

In addition, the NeuroBo Board approved the merger based on a number of factors, including the following:

- the anticipated cash resources of the combined organization expected to be available following the closing of the merger and the anticipated burn rate of the combined organization;
- the potential to provide NeuroBo's current stockholders with greater liquidity by owning stock in the combined organization, which will be a public company;
- the expectation that the merger with Gemphire would be a more time- and cost-efficient means to access capital than other options considered by and available to NeuroBo, including private placements, venture debt financings and traditional methods of accessing the public markets through an initial public offering of NeuroBo's securities; and
- the broader range of investors potentially available to the combined organization as a public company to support the development of NeuroBo's product candidates, as compared with the investors that NeuroBo could otherwise gain access to if it continued to operate as a privately held company.

**Opinion of the Gemphire Financial Advisor** (see page 162)

The Gemphire Board engaged Ladenburg Thalmann & Co. Inc. ("Ladenburg Thalmann") to provide financial advisory services and to consider and evaluate potential strategic transactions on its behalf. Gemphire ultimately requested that Ladenburg Thalmann deliver a fairness opinion with respect to the merger with NeuroBo. On July 23, 2019, at the request of the Gemphire Board, Ladenburg Thalmann rendered the oral opinion, subsequently confirmed by delivery of the written opinion dated July 24, 2019, to the Gemphire Board, that the merger consideration was fair, from a financial point of view, to the Gemphire Stockholders as of the date of such opinion and based upon the various assumptions, qualifications and limitations set forth therein.

The full text of the written Opinion of Ladenburg Thalmann, dated July 24, 2019 (the "Opinion"), is attached as Annex E to this proxy statement/prospectus/information statement and is incorporated

herein by reference. Gemphire encourages Gemphire Stockholders to read the Opinion in its entirety for the assumptions made, procedures followed, other matters considered and limits of the review by Ladenburg Thalmann. The summary of the written Opinion of Ladenburg Thalmann set forth herein is qualified by reference to the full text of the Opinion. Ladenburg Thalmann provided its Opinion for the sole benefit and use by the Gemphire Board in its consideration of the merger. The Opinion is not a recommendation to any stockholder as to how to vote with respect to the proposed merger or to take any other action in connection with the merger or otherwise.

**Material U.S. Federal Income Tax Consequences of the Merger** (see page 185)

In the opinion of Mintz, and subject to the Tax Opinion Representations and Assumptions, the merger will qualify as either a tax-free contribution pursuant to Section 351 of the Code or a "reorganization" within the meaning of Section 368(a) of the Code. Subject to the limitations and qualifications described in the section entitled "*The Merger—Material U.S. Federal Income Tax Consequences of the Merger*," a U.S. Holder of NeuroBo common stock generally will not recognize any gain or loss for U.S. federal income tax purposes on the exchange of shares of NeuroBo common stock for shares of Gemphire common stock in the merger, except with respect to cash received by such U.S. Holder of NeuroBo common stock in lieu of a fractional share of Gemphire common stock. If any of the Tax Opinion Representations and Assumptions is incorrect, incomplete or inaccurate or is violated, the accuracy of the opinion described above may be affected and the U.S. federal income tax consequences of the merger could differ from those described in this proxy statement/prospectus/information statement.

Please review the information in the section entitled "*The Merger—Material U.S. Federal Income Tax Consequences of the Merger*" for a more complete description of the material U.S. federal income tax consequences of the merger to U.S. Holders of NeuroBo common stock. The tax consequences to you of the merger will depend on your particular facts and circumstances. Please consult your tax advisors as to the specific tax consequences to you of the merger.

**Material U.S. Federal Income Tax Consequences of Receipt of CVRs and the Gemphire Reverse Stock Split** (see pages 211 and 253)

In the opinion of Honigman LLP, Gemphire's legal counsel, based on the facts, representations and assumptions set forth herein, the issuance of CVRs to Gemphire U.S. Holders under the terms expressed in the form of the CVR Agreement attached as *Annex C* to this proxy statement/prospectus/information statement is more likely than not to be treated as a distribution of property with respect to Gemphire common stock. Please review the information in the section entitled "*Agreements Related to the Merger—CVR Agreement—Material U.S. Federal Income Tax Consequences of the Receipt of CVRs*" for a more complete description of the material U.S. federal income tax consequences of the receipt of CVRs to Gemphire U.S. Holders, including possible alternative treatments.

A Gemphire U.S. Holder generally should not recognize gain or loss upon the Gemphire Reverse Stock Split, except to the extent a Gemphire U.S. Holder receives cash in lieu of a fractional share of Gemphire common stock. Please review the information in the section entitled "*Proposal No. 2: Approval of an Amendment to the Gemphire Certificate of Incorporation Effecting the Gemphire Reverse Stock Split—Material U.S. Federal Income Tax Consequences of the Gemphire Reverse Stock Split*" for a more complete description of the material U.S. federal income tax consequences of the Gemphire Reverse Stock Split to Gemphire U.S. Holders.

The tax consequences to you of the receipt of CVRs and the Gemphire Reverse Stock Split will depend on your particular facts and circumstances. Please consult your tax advisors as to the specific tax consequences to you.

**Overview of the Merger Agreement**

**Merger Consideration** (see page 194)

At the Effective Time, each outstanding share of common stock of NeuroBo outstanding immediately prior to the Effective Time (excluding any shares of common stock of NeuroBo held as treasury stock and any dissenting shares) will be converted solely into the right to receive a specified number of shares of Gemphire common stock.

The Merger Agreement does not provide for an adjustment to the total number of shares of Gemphire common stock that NeuroBo Stockholders will be entitled to receive for changes in the market price of Gemphire common stock. Accordingly, the market value of the shares of Gemphire common stock issued pursuant to the merger will depend on the market value of the shares of Gemphire common stock at the time the merger closes, and could vary significantly from the market value on the date of this proxy statement/prospectus/information statement.

**Treatment of Gemphire Options and Warrants (**see page 194)

Prior to the Closing, the Gemphire Board will adopt appropriate resolutions and take all other actions necessary and appropriate to provide that each Gemphire Option, whether vested or unvested, will be accelerated in full effective as of immediately prior to the Effective Time. Effective as of the Effective Time, each outstanding and unexercised Gemphire Option having an exercise price per share less than the Gemphire Closing Price will be automatically exercised in full and, in exchange therefor, each holder of any such automatically exercised Gemphire Options will be entitled to receive a number of shares of Gemphire common stock calculated by dividing (a) the product of (i) the total number of shares of Gemphire common stock previously subject to such Gemphire Option, and (ii) the excess of the Gemphire Closing Price over the exercise price per share of the Gemphire common stock previously subject to such Gemphire Option by (b) the Gemphire Closing Price. Each outstanding and unexercised Gemphire Option that has an exercise price equal to or greater than the Gemphire Closing Price will be terminated and cease to exist as of immediately prior to the Effective Time for no consideration.

The terms governing Gemphire Warrants will remain in full force and effect following the Closing of the merger.

**Treatment of NeuroBo Options** (see page 195)

Pursuant to the Merger Agreement, at the Effective Time, each NeuroBo Option that is outstanding and unexercised immediately prior to the Effective Time, whether or not vested, will be assumed by Gemphire and will become an option to purchase that number of shares of Gemphire common stock equal to the product obtained by multiplying (i) the number of shares of NeuroBo common stock that were subject to such NeuroBo Option immediately prior to the Effective Time by (ii) the Exchange Ratio, and rounding the resulting number down to the nearest whole number of shares of Gemphire common stock. The per share exercise price for shares of Gemphire common stock issuable upon exercise of each NeuroBo Option assumed by Gemphire shall be determined by dividing (a) the per share exercise price of NeuroBo common stock subject to such NeuroBo Option, as in effect immediately prior to the Effective Time, by (b) the Exchange Ratio, and rounding the resulting exercise price up to the nearest whole cent. Any restriction on the exercise of any NeuroBo Option assumed by Gemphire will continue in full force and effect and the term, exercisability, vesting schedule and other provisions of such NeuroBo Option shall otherwise remain unchanged.

**Conditions to the Completion of the Merger (**see page 196)

To consummate the merger, Gemphire Stockholders must approve Proposal Nos. 1 and 2. Additionally, NeuroBo Stockholders must (i) adopt and approve of the Merger Agreement and the transactions contemplated thereby, (ii) acknowledge that the approval given is irrevocable and that such stockholder is aware of its rights to demand appraisal for its shares pursuant to Section 262 of the General Corporation Law of the State of Delaware ("DGCL"), and that such stockholder has received and read a copy of Section 262 of the DGCL and (iii) acknowledge that by its approval of the merger it is not entitled to appraisal rights with respect to its shares in connection with the merger and thereby waives any rights to receive payment of the fair value of its capital stock under the DGCL.

In addition to obtaining such stockholder approvals and appropriate regulatory approvals, each of the other closing conditions set forth in the Merger Agreement, as described under the section entitled "*The Merger Agreement—Conditions to the Completion of the Merger*" in this proxy statement/prospectus/information statement must be satisfied or waived.

**No Solicitation** (see page 200)

Each of Gemphire and NeuroBo agreed that during the period commencing on the date of the Merger Agreement and ending on the earlier of the consummation of the merger or the termination of the Merger Agreement, except as described below, Gemphire and NeuroBo and any of their respective subsidiaries will not, nor will either party or any of its subsidiaries authorize any of the directors, officers, employees, agents, attorneys, accountants, investment bankers, advisors or representatives retained by it or any of its subsidiaries to, directly or indirectly:

- solicit, initiate or knowingly encourage, induce or facilitate the communication, making, submission or announcement of, any "acquisition proposal" or "acquisition inquiry" or take any action that could reasonably be expected to lead to an acquisition proposal or acquisition inquiry;
- furnish any non-public information with respect to it to any person in connection with or in response to an acquisition proposal or acquisition inquiry;
- engage in discussions or negotiations with any person with respect to any acquisition proposal or acquisition inquiry;
- approve, endorse or recommend an acquisition proposal;
- execute or enter into any letter of intent or similar document or any contract contemplating or otherwise relating to any "acquisition transaction" (other than a confidentiality agreement permitted by the Merger Agreement); or
- publicly propose to do any of the above.

**Termination** (see page 206)

Either Gemphire or NeuroBo can terminate the Merger Agreement under certain circumstances, which would prevent the merger from being consummated.

**Termination Fee** (see page 208)

If the Merger Agreement is terminated under certain circumstances, Gemphire or NeuroBo will be required to pay the other party a termination fee of up to $1.0 million.

**CVR Agreement** (see page 210)

Pursuant to the Merger Agreement and the CVR Agreement, for each share of Gemphire common stock held after giving effect to the Gemphire Reverse Stock Split, Gemphire Stockholders of record as of immediately prior to the Effective Time will receive one CVR entitling such holders to receive, in the aggregate, 80% of the Gross Consideration less other Permitted Deductions received during the 15-year period after the Closing of the merger (the "CVR Term") from the grant, sale or transfer of rights to gemcabene (other than a grant, sale or transfer of rights involving a sale or disposition of the post-merger combined company) that is entered into during the 10-year period after the Closing of the merger or pursuant to the Beijing SL License Agreement.

Under the CVR Agreement, the combined organization has agreed to commit $1 million to support the further development of gemcabene through the quarter ending March 31, 2020, the funding of which was conditioned on receipt by Gemphire of the $2.5 million upfront gross payment payable under the Beijing SL License Agreement.

The sole right of the holders of the CVRs is to receive cash from Gemphire, if any, through the rights agent in accordance with the CVR Agreement. The CVRs are not transferable, except in certain limited circumstances, will not be certificated or evidenced by any instrument and will not be registered with the SEC or listed for trading on any exchange. The CVRs will not have any voting or dividend rights, will not represent any equity or ownership interest in Gemphire or its subsidiaries, and interest will not accrue in any amounts payable on the CVRs. The CVR Agreement will be effective prior to the Closing of the merger and will continue in effect until the later of the end of the CVR Term and the payment of all amounts payable thereunder, unless and until earlier terminated upon termination of the Merger Agreement.

**Voting Agreements and Written Consents** (see page 215)

Concurrently with the execution of the Merger Agreement, the executive officers and directors and certain other Gemphire Stockholders entered into voting agreements with NeuroBo and Gemphire relating to the merger covering approximately 26% of the outstanding capital stock of Gemphire, as of date of the Merger Agreement. The voting agreements provide, among other things, that the stockholders who are parties to the voting agreements will vote all of the shares held by them in favor of Proposal Nos. 1, 2, 3, and 4.

Concurrently with the execution of the Merger Agreement, NeuroBo officers, directors and holders of 5% or more of NeuroBo capital stock entered into voting agreements with Gemphire and NeuroBo covering approximately 90% of the outstanding capital stock of NeuroBo as of the date of the Merger Agreement. The voting agreements provide, among other things, that the directors, officers and securityholders party to the NeuroBo voting agreements will vote all of the shares of NeuroBo held by them in favor of (i) the adoption and approval of the Merger Agreement and the transactions contemplated thereby, (ii) acknowledgement that the approval given for the Merger Agreement is irrevocable and that the stockholder is aware of its appraisal rights under the DGCL, (iii) acknowledgement that the stockholder is not entitled to appraisal rights by voting in favor of the transaction and waiving appraisal rights under the DGCL, and (iv) the conversion of each share of NeuroBo preferred stock and each NeuroBo convertible note into NeuroBo common stock. The NeuroBo voting agreements also place certain restrictions on the transfer of the shares of NeuroBo held by the respective signatories thereto.

**Nasdaq Stock Market Listing** (see page 189)

Gemphire has filed an initial listing application with Nasdaq pursuant to Nasdaq Stock Market LLC "business combination" rules. If such application is accepted, Gemphire anticipates that

Gemphire common stock will be listed on Nasdaq following the closing of the merger under the trading symbol "NRBO."

**Lock-up Agreements** (see page 216)

As a condition to the Closing of the merger, certain stockholders of each of Gemphire and NeuroBo and their affiliates, have entered into lock-up agreements, pursuant to which such parties have agreed not to, except in limited circumstances, offer, pledge, sell, contract to sell, transfer or dispose of, directly or indirectly, engage in swap or similar transactions with respect to, or make any demand for or exercise any right with respect to, any shares of Gemphire common stock or any security convertible into or exercisable or exchangeable for Gemphire common stock, including, as applicable, shares received in the merger and issuable upon exercise of certain warrants and options, during the period commencing at the Effective Time and continuing until the date that is 180 days from the Effective Time.

Each of the directors and officers of Gemphire is a party to a lock-up agreement. As of September 30, 2019, Gemphire Stockholders who have executed lock-up agreements beneficially owned in the aggregate approximately 14% of the outstanding Gemphire common stock.

NeuroBo Stockholders who have executed lock-up agreements, as of September 30, 2019, beneficially owned in the aggregate approximately 90% of the outstanding shares of NeuroBo capital stock on an as converted to common stock basis.

NeuroBo and Gemphire may waive the restrictions applicable to certain NeuroBo and Gemphire stockholders in their discretion and as needed to comply with the initial listing requirements of the Nasdaq Stock Market LLC and as described under the section entitled "*Agreements Related to the Merger—Lock-Up Agreements*" in this proxy statement/prospectus/information statement.

**Management Following the Merger** (see page 362)

Effective as of the Closing, Gemphire's officers are expected to include::

| Name | Position |
|---|---|
| John L. Brooks, III | President, Chief Executive Officer, Interim Chief Financial Officer and Class III Director |
| Mark Versavel, M.D., Ph.D., M.B.A. | Chief Medical Officer |
| Nandan Padukone, Ph.D., M.B.A. | Senior Vice President, Business Development |
| Nicola Shannon | Vice President, Clinical Operations |

**Interests of Certain Directors and Officers of Gemphire and NeuroBo** (see page 173)

In considering the recommendation of the Gemphire Board with respect to issuing shares of Gemphire common stock as contemplated by the Merger Agreement and the other matters to be acted upon by Gemphire Stockholders at the Gemphire annual meeting, Gemphire Stockholders should be aware that certain members of the Gemphire Board and certain of Gemphire's executive officers have interests in the merger that may be different from, or in addition to, the interests of Gemphire Stockholders. For example, Gemphire has entered into amended employment agreements with its executive officers that may result in the receipt by such executive officers of cash severance payments and other benefits upon an eligible termination of employment of each executive officer's employment in connection with the merger, and all of Gemphire's directors and executive officers are entitled to certain indemnification and liability insurance coverage pursuant to the terms of the Merger Agreement.

As of September 30, 2019, Gemphire's directors and executive officers beneficially owned, in the aggregate approximately 14% of the outstanding shares of Gemphire common stock. As of September 30, 2019, Gemphire's directors and current executive officers owned, in the aggregate, unvested Gemphire stock options covering 440,665 shares of Gemphire common stock and vested Gemphire stock options covering 771,174 shares of Gemphire common stock.

Dr. Steven Gullans, currently the President and Chief Executive Officer of Gemphire, is expected to be terminated from his position as an officer of Gemphire as of the Effective Time of the merger. After the Effective Time of the merger, it is expected that Dr. Gullans will be appointed to the board of directors of the combined company.

The compensation arrangements with Gemphire's officers and directors are discussed in greater detail in the section entitled "*The Merger—Interests of Gemphire Directors and Executive Officers in the Merger*" in this proxy statement/prospectus/information statement.

In considering the recommendation of the NeuroBo Board with respect to approving the merger, NeuroBo Stockholders should be aware that certain members of the NeuroBo Board and executive officers of NeuroBo have interests in the merger that may be different from, or in addition to, interests they have as NeuroBo Stockholders. All of NeuroBo's executive officers and directors have options, subject to vesting, to purchase shares of NeuroBo common stock that will be converted into and become options to purchase shares of Gemphire common stock. Certain of NeuroBo's directors and executive officers are expected to become directors and executive officers of the combined organization as described in "*Management Following the Merger*" upon the Closing, and all of NeuroBo's directors and executive officers are entitled to certain indemnification and liability insurance coverage pursuant to the terms of the Merger Agreement.

As of September 30, 2019, NeuroBo's directors and executive officers beneficially owned: (i) approximately 57% of the outstanding shares of NeuroBo common stock, (ii) approximately 82% of the outstanding shares of NeuroBo preferred stock, (iii) options to purchase 125,000 shares of NeuroBo common stock, all of which will be converted into options to purchase Gemphire common stock in connection with the closing of the merger pursuant to the Merger Agreement.

The compensation arrangements with NeuroBo's officers and directors are discussed in greater detail in the section entitled "*The Merger—Interests of NeuroBo Directors and Executive Officers in the Merger*" in this proxy statement/prospectus/information statement.

**Risk Factors** (see page 30)

Both Gemphire and NeuroBo are subject to various risks associated with their businesses and their industries. In addition, the merger poses a number of risks to each company and its respective stockholders, including the possibility that the merger may not be completed and the following risks:

- The Exchange Ratio set forth in the Merger Agreement is not adjustable based on the market price of Gemphire common stock, so the merger consideration at the Closing of the merger may have a greater or lesser value than at the time the Merger Agreement was signed.
- Failure to complete the merger may result in either Gemphire or NeuroBo paying a termination fee to the other party and could significantly harm the market price of Gemphire common stock and negatively affect the future business and operations of each company.
- The issuance of Gemphire common stock to NeuroBo Stockholders pursuant to the Merger Agreement and the resulting change in control from the merger must be approved by Gemphire Stockholders, and the Merger Agreement and transactions contemplated thereby must be approved by the NeuroBo Stockholders. Failure to obtain these approvals would prevent the Closing of the merger.

- The merger may be completed even though certain events occur prior to the Closing that materially and adversely affect Gemphire or NeuroBo.
- Some Gemphire and NeuroBo officers and directors have interests in the merger that are different from the respective stockholders of Gemphire and NeuroBo and that may influence them to support or approve the merger without regard to the interests of the respective stockholders of Gemphire and NeuroBo.
- The market price of Gemphire common stock following the merger may decline as a result of the merger.
- Gemphire Stockholders may not receive any payment on the CVRs and the CVRs may otherwise expire valueless.
- Gemphire Stockholders and NeuroBo securityholders will have a reduced ownership and voting interest in, and will exercise less influence over the management of, the combined organization following the Closing of the merger as compared to their current ownership and voting interest in the respective companies.
- Gemphire and NeuroBo Stockholders may not realize a benefit from the merger commensurate with the ownership dilution they will experience in connection with the merger.
- During the pendency of the merger, Gemphire and NeuroBo may not be able to enter into a business combination with another party at a favorable price because of restrictions in the Merger Agreement, which could adversely affect their respective businesses.
- Certain provisions of the Merger Agreement may discourage third parties from submitting alternative takeover proposals, including proposals that may be superior to the arrangements contemplated by the Merger Agreement.
- Because the lack of a public market for NeuroBo capital stock makes it difficult to evaluate the value of NeuroBo capital stock, the NeuroBo Stockholders may receive shares of Gemphire common stock in the merger that have a value that is less than, or greater than, the fair market value of NeuroBo capital stock.
- If the conditions to the merger are not met, the merger will not occur.

These risks and other risks are discussed in greater detail under the section entitled "*Risk Factors*" in this proxy statement/prospectus/information statement. Gemphire and NeuroBo both encourage you to read and consider all of these risks carefully.

**Regulatory Approvals** (see page 185)

In the United States, Gemphire must comply with applicable federal and state securities laws and the rules and regulations of Nasdaq in connection with the issuance of shares of Gemphire common stock and the filing of this proxy statement/prospectus/information statement with the SEC.

**Anticipated Accounting Treatment** (see page 190)

Although Gemphire is the legal acquirer and will issue shares of Gemphire common stock to affect the merger with NeuroBo, NeuroBo is considered the accounting acquirer. In accordance with the accounting guidance under ASU 2017-01, the merger is considered an asset acquisition. Accordingly, the assets and liabilities of Gemphire will be recorded as of the merger Closing date at the purchase price of the accounting acquirer, NeuroBo. NeuroBo will have to allocate the total purchase price among the individual net assets acquired on a fair value basis. Determination of fair value of certain assets acquired is dependent upon certain valuations that have yet to commence or progress to a stage where there is sufficient information for a definitive measurement. A final determination of these

estimated fair values, which cannot be made prior to the completion of the transaction, will be based on the actual net tangible assets of Gemphire that exist as of the date of the completion of the transaction. **Therefore, the actual purchase price allocation may differ from the amounts reflected in the unaudited pro forma condensed combined financial statements.** The unaudited pro forma condensed consolidated financial statements include the accounts of Gemphire since the effective date of merger and NeuroBo since inception.

**Appraisal Rights and Dissenters' Rights** (see page 190)

Holders of Gemphire common stock are not entitled to appraisal rights in connection with the merger. Holders of NeuroBo common stock are entitled to appraisal rights in connection with the merger under Delaware law. For more information about such rights, please see the provisions of Section 262 of the General Corporation Law of the State of Delaware (the "DGCL") attached as *Annex F* and the section entitled "*The Merger—Appraisal Rights and Dissenters' Rights*" in this proxy statement/prospectus/information statement.

**Comparison of Stockholder Rights** (see page 392)

Both Gemphire and NeuroBo are incorporated under the laws of the State of Delaware and, accordingly, the rights of the stockholders of each are currently, and will continue to be, governed by the DGCL. If Proposals Nos. 1 and 2 are approved by Gemphire Stockholders at the Gemphire annual meeting and, the merger is completed, NeuroBo Stockholders will become stockholders of Gemphire, and rights will be governed by the DGCL, Gemphire's second amended and restated bylaws (the "Gemphire Bylaws") and, the Gemphire Certificate of Incorporation. The rights of Gemphire stockholders contained in the Gemphire Certificate of Incorporation and Gemphire Bylaws differ from the rights of NeuroBo Stockholders under the fourth amended and restated certificate of incorporation and bylaws of NeuroBo, as more fully described under the section entitled *"Comparison of Rights of Holders of Gemphire Stock and NeuroBo Stock"* in this proxy statement/prospectus/information statement.

## SELECTED HISTORICAL AND UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL DATA

*The following tables present summary historical financial data for Gemphire and NeuroBo, summary unaudited pro forma condensed combined financial data for Gemphire and NeuroBo, and comparative historical and unaudited pro forma per share data for Gemphire and NeuroBo.*

**Selected Historical Financial Data of Gemphire**

The following selected statement of operations data for the years ended December 31, 2018, 2017 and 2016 and the selected balance sheet data as of December 31, 2018 and 2017 was derived from Gemphire's audited financial statements included elsewhere in this proxy statement/prospectus/information statement. Gemphire derived the following selected statement of operations data for the years ended December 31, 2015 and 2014 and the selected balance sheet data as of December 31, 2016, 2015 and 2014 from audited financial statements that are not included in this proxy statement/prospectus/information statement. The following selected financial data as of and for the six months ended June 30, 2019 and 2018 are derived from Gemphire's unaudited condensed financial statements included in this proxy statement/prospectus/information statement.

Gemphire's historical results are not necessarily indicative of the results that may be expected in the future. You should read the selected financial data below in conjunction with the section entitled "*Gemphire Management's Discussion and Analysis of Financial Condition and Results of Operations*" and

Gemphire's financial statements and related notes appearing elsewhere in this proxy statement/prospectus/information statement.

| | Year Ended December 31, | | | | | Six months Ended June 30, | |
|---|---|---|---|---|---|---|---|
| | 2018 | 2017 | 2016 | 2015 | 2014 | 2019 | 2018 |
| | (in thousands, except share and per share data) | | | | | (unaudited) | |
| **Statement of Operations Data:** | | | | | | | |
| Operating expenses: | | | | | | | |
| General and administrative | $ 8,493 | $ 10,438 | $ 5,956 | $ 3,177 | $ 214 | $ 2,522 | $ 4,661 |
| Research and development | 14,312 | 22,686 | 8,740 | 3,991 | 52 | 2,627 | 8,937 |
| Acquired in—process research and development | — | — | — | 908 | — | — | — |
| Total operating expenses | 22,805 | 33,124 | 14,696 | 8,076 | 266 | 5,149 | 13,598 |
| Loss from operations | (22,805) | (33,124) | (14,696) | (8,076) | (266) | (5,149) | (13,598) |
| Interest (expense) income | (654) | (286) | 114 | (762) | (55) | (820) | (304) |
| Loss on convertible note extinguishment | — | — | — | (198) | — | — | — |
| Other (expense) income | (178) | (5) | (4) | 7 | 1 | (752) | — |
| Loss before income taxes | (23,637) | (33,415) | (14,586) | (9,029) | (320) | (6,721) | (13,902) |
| Provision (benefit) for income taxes | — | — | — | — | — | — | — |
| Net loss | (23,637) | (33,415) | (14,586) | (9,029) | (320) | (6,721) | (13,902) |
| Other comprehensive loss, net of tax | — | — | — | — | — | — | — |
| Comprehensive loss | $ (23,637) | $ (33,415) | $ (14,586) | $ (9,029) | $ (320) | $ (6,721) | $ (13,902) |
| Net loss | $ (23,637) | $ (33,415) | $ (14,586) | $ (9,029) | $ (320) | $ (6,721) | $ (13,902) |
| Adjustment to redemption value on Series A convertible preferred stock | — | — | (366) | (2,968) | — | — | — |
| Premium upon substantial modification of convertible notes with certain stockholders | — | — | — | (1,047) | — | — | — |
| Net loss attributable to common stockholders | $ (23,637) | $ (33,415) | $ (14,952) | $ (13,044) | $ (320) | $ (6,721) | $ (13,902) |
| Net loss per share: | | | | | | | |
| Basic and diluted | $ (1.71) | $ (3.23) | $ (2.57) | $ (4.54) | $ (0.21) | $ (0.47) | $ (1.04) |
| Number of shares used in per share calculations: | | | | | | | |
| Basic and diluted(1) | 13,805,552 | 10,349,136 | 5,809,396 | 2,875,053 | 1,521,703 | 14,265,411 | 13,340,941 |

| | As of December 31, | | | | | As of June 30, | |
|---|---|---|---|---|---|---|---|
| | 2018 | 2017 | 2016 | 2015 | 2014 | 2019 | 2018 |
| | (in thousands) | | | | | (unaudited) | |
| **Balance Sheet Data:** | | | | | | | |
| Cash and cash equivalents | $ 18,954 | $ 18,473 | $ 24,033 | $ 3,620 | $ 317 | $ 3,643 | $ 28,039 |
| Total assets | 19,694 | 19,017 | 24,754 | 4,490 | 330 | 4,014 | 28,806 |
| Convertible notes (including premium conversion derivative) | — | — | — | 6,769 | 810 | — | — |
| Term loan (long-term portion) | — | 8,683 | — | — | — | — | 7,540 |
| Total liabilities | 11,920 | 15,076 | 4,122 | 8,917 | 861 | 2,050 | 13,758 |
| Series A convertible preferred stock | — | — | — | 7,953 | — | — | — |
| Accumulated deficit | (84,111) | (60,474) | (27,059) | (12,392) | (584) | (90,832) | (74,376) |
| Total stockholders' equity (deficit) | 7,774 | 3,941 | 20,632 | (12,380) | (531) | 1,964 | 15,048 |

(1) Basic and diluted net loss per share attributable to common stockholders is computed based on the weighted-average number of shares of common stock outstanding during each period. In April 2016, our board of directors approved an amendment to our certificate of incorporation to effect a 1-for-3.119 reverse stock split (the Reverse Stock Split) for all common and Series A preferred stock, effective on April 27, 2016. All share and per share data in this table has been adjusted to reflect the Reverse Stock Split. For additional information, see Note 1 to our audited financial statements included elsewhere in this proxy statement/prospectus/information statement.

**Selected Historical Financial Data of NeuroBo**

The selected statement of operations data for the year ended December 31, 2018 and the period from inception (July 25, 2017) to December 31, 2017 and the selected balance sheet data as of December 31, 2018 and December 31, 2017 are derived from NeuroBo's audited consolidated financial statements prepared using accounting principles generally accepted in the United States ("U.S. GAAP"), which are included in this proxy statement/prospectus/information statement. The selected statement of operations data for the six months ended June 30, 2019 and 2018 and the selected balance sheet data as of June 30, 2019 are derived from NeuroBo's unaudited condensed consolidated financial statements included in this proxy statement/prospectus/information statement. The financial data should be read in conjunction with the section entitled *"NeuroBo Management's Discussion and Analysis of Financial Condition and Results of Operations"* and NeuroBo's consolidated financial statements and related notes appearing elsewhere in this proxy statement/prospectus/

information statement. The historical results are not necessarily indicative of results to be expected in any future period.

| | Year Ended December 31, 2018 | From Inception (July 25, 2017) to December 31, 2017 | Six Months Ended June 30, 2019 | Six Months Ended June 30, 2018 |
|---|---|---|---|---|
| | (in thousands, except per share data) | | (Unaudited) | |
| **Statement of Operations Data Operating Expenses:** | | | | |
| Research and development expenses | $ 13,881 | $ — | $ 2,748 | $ 8,953 |
| General and administrative expenses | 1,605 | 25 | 1,590 | 345 |
| Loss from operations | (15,486) | (25) | (4,338) | (9,298) |
| Net loss | (15,529) | (25) | (4,365) | (9,314) |
| Net loss per share, basic and diluted | $ (4.18) | $ (0.02) | $ (0.97) | $ (3.21) |
| Weighted average common shares outstanding, basic and diluted | 3,719,123 | 1,137,500 | 4,520,000 | 2,904,972 |

| | As of December 31, 2018 | As of December 31, 2017 | As of June 30, 2019 |
|---|---|---|---|
| | (in thousands, except per share data) | | (Unaudited) |
| **Balance Sheet Data:** | | | |
| Cash | $ 2,845 | $ 50 | $ 24,588 |
| Working capital, net | 3,589 | 25 | 23,518 |
| Total assets | 3,820 | 53 | 24,687 |
| Preferred stock | 16,746 | — | 40,921 |
| Additional paid-in capital | 2,266 | 50 | 2,405 |
| Accumulated deficit | (15,554) | (25) | (19,919) |
| Total stockholders' equity | $ (13,286) | $ 25 | $ (17,503) |

**Selected Unaudited Pro Forma Condensed Combined Financial Data of Gemphire and NeuroBo**

The following selected unaudited pro forma condensed combined financial data was prepared using the acquisition method of accounting under U.S. GAAP. For accounting purposes, NeuroBo was determined to be the accounting acquirer in the merger. The unaudited pro forma condensed combined statements of operations data assume that the merger took place as of January 1, 2018, and combines the historical results of Gemphire and NeuroBo for the six months ended June 30, 2019 and the year ended December 31, 2018. The unaudited pro forma combined balance sheet data assume that the merger took place on June 30, 2019, and combines the Gemphire and NeuroBo historical balance sheets as of June 30, 2019. *The following information does not give effect to the Gemphire Reverse Stock Split, or to any additional proceeds NeuroBo may receive in the Pre-Closing Financing above the $24,240,000 already received.*

The selected unaudited pro forma condensed combined financial data are presented for illustrative purposes only and are not necessarily indicative of the combined financial position or results of operations of future periods or the results that actually would have been realized had the entities been a single entity during these periods. The selected unaudited pro forma condensed combined financial

data as of and for the six months ended June 30, 2019 and for the year ended December 31, 2018 are derived from the unaudited pro forma condensed combined financial information and should be read in conjunction with that information. For more information, please see the section entitled *"Unaudited Pro Forma Condensed Combined Financial Statements"* in this proxy statement/prospectus/information statement.

**Unaudited Pro Forma Condensed Combined Statements of Operations Data**

| | Year Ended December 31, 2018 | Six Months Ended June 30, 2019 |
|---|---|---|
| | (in thousands, except per share data) | |
| Research and development expenses | $ 28,193 | $ 5,375 |
| General and administrative expenses | 10,098 | 4,112 |
| Loss from operations | (38,291) | (9,487) |
| Net loss | (39,125) | (10,400) |
| Net loss per share, basic and diluted | $ (0.18) | $ (0.03) |

**Unaudited Pro Forma Condensed Combined Balance Sheet Data**

| | As of June 30, 2019 |
|---|---|
| | (in thousands) |
| Cash and cash equivalents | $ 28,231 |
| Working capital, net | 19,551 |
| Total assets | 28,701 |
| Accumulated deficit | (35,145) |
| Total stockholders' equity | $ 19,646 |

**Comparative Historical and Unaudited Pro Forma Per Share Data**

The information below reflects the historical net loss and book value per share of Gemphire common stock and the historical net loss and book value per unit of NeuroBo common stock in comparison with the unaudited pro forma net loss and book value per share after giving effect to the merger on a pro forma basis. The unaudited pro forma net loss and book value per share does not give effect to the Gemphire Reverse Stock Split.

You should read the tables below in conjunction with the audited and unaudited financial statements of Gemphire, the audited and unaudited consolidated financial statements of NeuroBo, the unaudited pro forma condensed combined financial information, and notes related to such financial statements included elsewhere in this proxy statement/prospectus/information statement.

***Gemphire***

| | Year Ended December 31, 2018 | Six Months Ended June 30, 2019 |
|---|---|---|
| **Historical Per Common Share Data:** | | |
| Basic and diluted net loss per share | $ (1.71) | $ (0.47) |
| Book value per share | $ 0.54 | $ 0.14 |

***NeuroBo***

| | Year Ended December 31, 2018 | Six Months Ended June 30, 2019 |
|---|---|---|
| **Historical Per Common Share Data:** | | |
| Basic and diluted net loss per share | $ (4.18) | $ (0.97) |
| Book value per share | $ (2.94) | $ (3.87) |

***Combined company***

| | Year Ended December 31, 2018 | Six Months Ended June 30, 2019 |
|---|---|---|
| **Historical Per Common Share Data:** | | |
| Basic and diluted net loss per share | $ (0.18) | $ (0.03) |
| Book value per share | N/A | $ 0.06 |

## MARKET PRICE AND DIVIDEND INFORMATION

Gemphire common stock is listed on the Nasdaq Capital Market under the symbol "GEMP." NeuroBo is a private company and shares of NeuroBo common stock and NeuroBo preferred stock are not publicly traded. The closing price of Gemphire common stock on June 23, 2019, the last trading day prior to the public announcement of the merger, was $0.72 per share, and the closing price of Gemphire common stock was $0.36 on November 1, 2019, each as reported on the Nasdaq Capital Market. Because the market price of Gemphire common stock is subject to fluctuation, the market value of the shares of Gemphire common stock that NeuroBo Stockholders will be entitled to receive in the merger may increase or decrease.

Assuming approval of Proposal Nos. 1 and 2 and successful application for initial listing on the Nasdaq Capital Market, following the consummation of the merger, the Gemphire common stock will trade on the Nasdaq Capital Market under the symbol "NRBO".

As of October 31, 2019, the Record Date for the Gemphire annual meeting, there were approximately 54 holders of record of Gemphire common stock. As of October 31, 2019, NeuroBo had 5 holders of record of NeuroBo common stock and 7 holders of record of NeuroBo preferred stock. For detailed information regarding the beneficial ownership of certain Gemphire Stockholders upon consummation of the merger, see the section entitled "*Principal Stockholders of Combined Organization*" in this proxy statement/prospectus/information statement.

***Dividends***

Gemphire has never declared or paid any cash dividends on the Gemphire common stock and does not anticipate paying cash dividends on the Gemphire common stock for the foreseeable future. Notwithstanding the foregoing, any determination to pay cash dividends subsequent to the merger will be at the discretion of the combined organization's then-current board of directors and will depend upon a number of factors, including the combined organization's results of operations, financial condition, future prospects, contractual restrictions, restrictions imposed by applicable law and other factors the then-current board of directors deems relevant.

NeuroBo has never paid or declared any cash dividends on the NeuroBo capital stock. If the merger does not occur, NeuroBo does not anticipate paying any cash dividends on the NeuroBo capital stock in the foreseeable future, and NeuroBo intends to retain all available funds and any future earnings to fund the development and expansion of its business. Any future determination to pay dividends will be at the discretion of the NeuroBo Board and will depend upon a number of factors, including its results of operations, financial condition, future prospects, contractual restrictions, and restrictions imposed by applicable laws and other factors the NeuroBo Board deems relevant.

## RISK FACTORS

*The combined organization will be faced with a market environment that cannot be predicted and that involves significant risks, many of which will be beyond its control. In addition to the other information contained in this proxy statement/prospectus/information statement, you should carefully consider the material risks described below and those described in the section of this proxy statement/prospectus/information statement entitled "Cautionary Statement Concerning Forward-Looking Statements" before deciding how to vote your shares of stock. You should also read and consider the other information in this proxy statement/prospectus/information statement. Please see the section titled "Where You Can Find More Information" in this proxy statement/prospectus/information statement.*

### Risks Related to the Merger

***The Exchange Ratio set forth in the Merger Agreement is not adjustable based on the market price of Gemphire common stock, so the merger consideration at the Closing of the merger may have a greater or lesser value than at the time the Merger Agreement was signed.***

The Merger Agreement has set the calculation of the Exchange Ratio for the NeuroBo capital stock, and the Exchange Ratio is based on the fully-diluted capitalization of NeuroBo and Gemphire, in each case immediately prior to the Closing of the merger as described in the section entitled *"The Merger—Merger Consideration and Exchange Ratio."* Based on the current estimate of the Exchange Ratio, the Gemphire Securityholders immediately prior to the merger are expected to own, or hold rights to acquire, in the aggregate, approximately 3.74% of the Fully Diluted Closing Gemphire Common Stock and NeuroBo Securityholders immediately prior to the merger are expected to own, or hold rights to acquire, in the aggregate, approximately 96.26% of the Fully Diluted Closing Gemphire Common Stock, in each case, immediately following the merger, on a fully-diluted basis and assuming Gemphire's Parent Cash Amount is negative $3.4 million and that NeuroBo raises the minimum required amount of $24,240,000 in its Pre-Closing Financing each as described in the section entitled "*The Merger Agreement—Conditions to the Completion of the Merger*". The Exchange Ratio is subject to adjustment to the extent Gemphire's Parent Cash Amount is negative or to reflect aggregate gross proceeds received by NeuroBo in its Pre-Closing Financing before the Closing of the merger above the minimum required amount and up to and including $50 million, and as a result, either Gemphire Stockholders or the NeuroBo Stockholders could own less of the combined company than currently expected.

Any changes in the market price of Gemphire common stock before the completion of the merger will not affect the number of shares of Gemphire common stock issuable to NeuroBo Stockholders pursuant to the Merger Agreement. Therefore, if before the completion of the merger the market price of Gemphire common stock declines from the market price on the date of the Merger Agreement, then NeuroBo Stockholders could receive merger consideration with substantially lower value than the value of such merger consideration on the date of the Merger Agreement. Similarly, if before the completion of the merger the market price of Gemphire common stock increases from the market price of Gemphire common stock on the date of the Merger Agreement, then NeuroBo's Stockholders could receive merger consideration with substantially greater value than the value of such merger consideration on the date of the Merger Agreement. The Merger Agreement does not include a price-based termination right. Because the Exchange Ratio does not adjust as a result of changes in the market price of Gemphire common stock, for each one percentage point change in the market price of Gemphire common stock, there is a corresponding one percentage point rise or decline, respectively, in the value of the total merger consideration payable to NeuroBo's Stockholders pursuant to the Merger Agreement.

***Failure to complete the merger may result in either Gemphire or NeuroBo paying a termination fee to the other party and could significantly harm the market price of Gemphire common stock and negatively affect the future business and operations of each company.***

If the merger is not completed and the Merger Agreement is terminated under certain circumstances, Gemphire or NeuroBo may be required to pay the other party a termination fee of $1.0 million, or in some circumstances reimburse the other party's expenses up to a maximum of $500,000. Even if a termination fee or expenses of the other party are not payable in connection with a termination of the Merger Agreement, each of Gemphire and NeuroBo will have incurred significant fees and expenses, which must be paid whether or not the merger is completed. Further, if the merger is not completed, it could significantly harm the market price of Gemphire common stock.

In addition, if the Merger Agreement is terminated and the Gemphire Board or NeuroBo Board determines to seek another business combination, there can be no assurance that either Gemphire or NeuroBo will be able to find a partner and close an alternative transaction on terms that are as favorable or more favorable than the terms set forth in the Merger Agreement. See the section entitled "*Risk Factors—If the merger is not completed, Gemphire may not be able to otherwise source adequate liquidity to fund its operations, meet its obligations, and continue as a going concern. The Gemphire Board may decide to pursue a dissolution and liquidation of Gemphire. In such an event, there can be no assurances as to the amount or timing of available cash left, if any, to distribute to its stockholders after paying its debts and other obligations and setting aside funds for reserves.*"

***The issuance of Gemphire common stock to NeuroBo Stockholders pursuant to the Merger Agreement and the resulting change in control from the merger must be approved by Gemphire Stockholders, and the Merger Agreement and transactions contemplated thereby must be approved by the NeuroBo Stockholders. Failure to obtain these approvals would prevent the Closing of the merger.***

Before the merger can be completed, the stockholders of each of Gemphire and NeuroBo must approve the merger. Failure to obtain the required stockholder approvals may result in a material delay in, or the abandonment of, the merger. Any delay in completing the merger may materially adversely affect the timing and benefits that are expected to be achieved from the merger.

***The merger may be completed even though certain events occur prior to the Closing that materially and adversely affect Gemphire or NeuroBo.***

The Merger Agreement provides that either Gemphire or NeuroBo can refuse to complete the merger if there is a material adverse change affecting the other party between July 24, 2019, the date of the Merger Agreement, and the Closing of the merger. However, certain types of changes do not permit either party to refuse to complete the merger, even if such change could be said to have a material adverse effect on Gemphire or NeuroBo, including:

- general business or economic conditions affecting the industries in which NeuroBo or Gemphire, as applicable, operates;
- any acts of war, armed hostilities or terrorism;
- any changes in financial, banking or securities markets;
- with respect to Gemphire, any change in its stock price or trading volume excluding any underlying effect that may have caused such change, unless such effect is otherwise exempt from causing a material adverse effect under the Merger Agreement;
- failure to meet internal or analysts' expectations or projections or the results of operations;
- any clinical trial programs or studies, including any adverse data, event or outcome arising out of or related to any such programs or studies;

- any change in, or any compliance with or action taken for the purpose of complying with, applicable laws or GAAP, or interpretations thereof;
- any effect resulting from the announcement or pendency of the merger or any related transactions;
- continued losses from operations or decreases in cash balances of Gemphire or NeuroBo; and
- the taking of any action by Gemphire or NeuroBo required to comply with the terms of the Merger Agreement.

If adverse changes occur and Gemphire and NeuroBo still complete the merger, the market price of the combined organization's common stock may suffer. This in turn may reduce the value of the merger to the stockholders of Gemphire, NeuroBo or both.

***Some Gemphire and NeuroBo officers and directors have interests in the merger that are different from the respective stockholders of Gemphire and NeuroBo and that may influence them to support or approve the merger without regard to the interests of the respective stockholders of Gemphire and NeuroBo.***

Certain officers and directors of Gemphire and NeuroBo participate in arrangements that provide them with interests in the merger that are different from the interests of the respective stockholders of Gemphire and NeuroBo, including, among others, the continued service as an officer or director of the combined organization, severance benefits, the acceleration of stock option vesting, continued indemnification and the potential ability to sell an increased number of shares of common stock of the combined organization in accordance with Rule 144 under the Securities Act of 1933, as amended.

For example, Gemphire has entered into employment agreements and amendments to such employment agreements with its executive officers that may result in the receipt by such executive officers of cash severance payments, vesting of restricted stock awards and other benefits in the event of a covered termination of employment of each executive officer's employment. Gemphire issued each of Dr. Gullans, Dr. Bisgaier and Mr. Reno a Gemphire restricted stock award representing 300,000, 100,000 and 100,000 shares, respectively, of Gemphire common stock that will vest immediately prior to the Effective Time. In addition, grants of Gemphire restricted stock were also made to Gemphire's non-employee directors (45,000 shares of Gemphire restricted stock in the aggregate) that will vest immediately prior to the Effective Time. For more information concerning the issuance of Gemphire restricted stock in connection with the merger, see the section entitled "*The Merger Agreement—Treatment of Gemphire Options and Warrants"* in this proxy statement/prospectus/information statement. The Closing of the merger may also result in the acceleration of vesting of options to purchase shares of Gemphire common stock held by Gemphire's executive officers and directors, whether or not there is a covered termination of such officer's employment to the extent the exercise price per share of such options is less than the volume weighted average closing trading price of a share of Gemphire common stock on the Nasdaq Capital Market for the five trading days ending five trading days immediately prior to the date on which the merger becomes effective. In addition, and for example, certain of NeuroBo's directors and executive officers have options, subject to vesting, to purchase shares of NeuroBo's common stock which, at the Closing of the merger, shall be converted into and become options to purchase shares of Gemphire common stock, certain of NeuroBo's directors and executive officers are expected to become directors and executive officers of Gemphire upon the Closing of the merger, and all of NeuroBo's directors and executive officers are entitled to certain indemnification and liability insurance coverage pursuant to the terms of the Merger Agreement. These interests, among others, may influence the officers and directors of Gemphire and NeuroBo to support or approve the merger. For more information concerning the interests of Gemphire's and NeuroBo's executive officers and directors, see the sections entitled *"The Merger—Interests of Gemphire Directors and Executive Officers in the Merger"* and "*The Merger—Interests of NeuroBo Directors and Executive Officers in the Merger*."

***The market price of Gemphire common stock following the merger may decline as a result of the merger.***

The market price of Gemphire common stock may decline as a result of the merger for a number of reasons, including if:

- investors react negatively to the prospects of the combined organization's product candidates, business and financial condition following the merger;
- the effect of the merger on the combined organization's business and prospects is not consistent with the expectations of financial or industry analysts; or
- the combined organization does not achieve the perceived benefits of the merger as rapidly or to the extent anticipated by financial or industry analysts.

***Gemphire and NeuroBo securityholders will have a reduced ownership and voting interest in, and will exercise less influence over the management of, the combined organization following the Closing of the merger as compared to their current ownership and voting interest in the respective companies.***

If the proposed merger is completed, the current securityholders of Gemphire and NeuroBo will own a smaller percentage of the combined organization than their ownership in their respective companies prior to the merger. Each share of NeuroBo common stock outstanding immediately prior to the Effective Time will be converted into the right to receive shares of Gemphire common stock equal to the Exchange Ratio. Applying the current estimate of the Exchange Ratio, the Gemphire Securityholders immediately prior to the merger are expected to own, or hold rights to acquire, in the aggregate, approximately 3.74% of the Fully Diluted Closing Gemphire Common Stock and NeuroBo Securityholders immediately prior to the merger are expected to own, or hold rights to acquire, in the aggregate, approximately 96.26% of the Fully Diluted Closing Gemphire Common Stock, in each case, immediately following the merger, assuming Gemphire Parent Cash Amount is negative $3.4 million and that NeuroBo raises the minimum required amount of $24,240,000 in its Pre-Closing Financing. The Exchange Ratio is subject to adjustment to the extent Gemphire's Parent Cash Amount is negative or to reflect aggregate gross proceeds received by NeuroBo in its Pre-Closing Financing before the Closing of the merger above the minimum required amount and up to and including $50 million. See also the risk factor above entitled "*The Exchange Ratio set forth in the Merger Agreement is not adjustable based on the market price of Gemphire common stock, so the merger consideration at the closing of the merger may have a greater or lesser value than at the time the Merger Agreement was signed.*" Accordingly, the issuance of shares of Gemphire common stock to NeuroBo Stockholders in the merger will reduce significantly the relative voting power of each share of Gemphire common stock held by its current stockholders and will reduce the relative voting power of each share of NeuroBo common stock held by its current stockholders. Consequently, Gemphire Stockholders as a group and NeuroBo Stockholders as a group will have less influence over the management and policies of the combined company after the merger than prior to the merger. These estimates are based on the anticipated Exchange Ratio and are subject to adjustment as provided in the Merger Agreement.

In addition, the ten member board of directors of the combined company will initially include nine individuals with prior NeuroBo affiliations and one individual with a prior Gemphire affiliation. Consequently, securityholders of Gemphire and NeuroBo will be able to exercise less influence over the management and policies of the combined organization following the Closing of the merger than they currently exercise over the management and policies of their respective companies.

***Gemphire Stockholders and NeuroBo Stockholders may not realize a benefit from the merger commensurate with the ownership dilution they will experience in connection with the merger.***

If the combined organization is unable to realize the strategic and financial benefits currently anticipated from the merger, Gemphire Stockholders and NeuroBo Stockholders will have experienced

substantial dilution of their ownership interests in their respective companies without receiving the expected commensurate benefit, or only receiving part of the commensurate benefit to the extent the combined organization is able to realize only part of the expected strategic and financial benefits currently anticipated from the merger.

***The combined company will need to raise additional capital by issuing securities or debt or through licensing or other strategic arrangements, which may cause dilution to the combined company's stockholders or restrict the combined company's operations or impact its proprietary rights.***

The combined company may be required to raise additional funds sooner than currently planned. In this regard, while the Exchange Ratio may be impacted by cash levels of the respective companies at the Closing of the merger, the Merger Agreement does not condition the completion of the merger upon either company holding a minimum amount of cash at the Effective Time. If either or both of Gemphire or NeuroBo hold less cash at the time of the Closing than the parties currently expect, the combined company will need to raise additional capital sooner than expected. Additional financing may not be available to the combined company when it needs it or may not be available on favorable terms. To the extent that the combined company raises additional capital by issuing equity securities, such an issuance may cause significant dilution to the combined company's stockholders' ownership and the terms of any new equity securities may have preferences over the combined company's common stock. Any debt financing the combined company enters into may involve covenants that restrict its operations. These restrictive covenants may include limitations on additional borrowing and specific restrictions on the use of the combined company's assets, as well as prohibitions on its ability to create liens, pay dividends, redeem its stock or make investments. In addition, if the combined company raises additional funds through licensing, partnering or other strategic arrangements, it may be necessary to relinquish rights to some of the combined company's technologies or product candidates and proprietary rights, or grant licenses on terms that are not favorable to the combined company.

***During the pendency of the merger, Gemphire and NeuroBo may not be able to enter into a business combination with another party at a favorable price because of restrictions in the Merger Agreement, which could adversely affect their respective businesses.***

Covenants in the Merger Agreement impede the ability of Gemphire and NeuroBo to make acquisitions, subject to certain exceptions relating to fiduciary duties, as set forth below, or to complete other transactions that are not in the ordinary course of business pending completion of the merger. As a result, if the merger is not completed, the parties may be at a disadvantage to their competitors during such period. In addition, while the Merger Agreement is in effect, each party is generally prohibited from soliciting, initiating, encouraging or entering into certain extraordinary transactions, such as a merger, sale of assets, or other business combination outside the ordinary course of business with any third party, subject to certain exceptions relating to fiduciary duties. Any such transactions could be favorable to such party's stockholders.

***Certain provisions of the Merger Agreement may discourage third parties from submitting alternative takeover proposals, including proposals that may be superior to the arrangements contemplated by the Merger Agreement.***

The terms of the Merger Agreement prohibit each of Gemphire and NeuroBo from soliciting alternative takeover proposals or cooperating with persons making unsolicited takeover proposals, except in limited circumstances when such party's board of directors determines in good faith that an unsolicited alternative takeover proposal is or is reasonably likely to lead to a superior takeover proposal and that failure to cooperate with the proponent of the proposal would be reasonably likely to be inconsistent with the applicable board's fiduciary duties. Any such transactions could be favorable to such party's stockholders.

***Because the lack of a public market for NeuroBo capital stock makes it difficult to evaluate the value of NeuroBo capital stock, the NeuroBo Stockholders may receive shares of Gemphire common stock in the merger that have a value that is less than, or greater than, the fair market value of NeuroBo capital stock.***

The outstanding capital stock of NeuroBo is privately held and is not traded in any public market. The lack of a public market makes it extremely difficult to determine the fair market value of NeuroBo. Because the percentage of Gemphire common stock to be issued to NeuroBo Stockholders was determined based on negotiations between the parties, it is possible that the value of Gemphire common stock to be received by NeuroBo Stockholders will be less than the fair market value of NeuroBo, or Gemphire may pay more than the aggregate fair market value for NeuroBo.

***If the conditions to the merger are not met, the merger will not occur.***

Before the proposed merger can be completed, the stockholders of each of Gemphire and NeuroBo must approve the Merger Agreement. There can be no assurances that the necessary stockholder approvals will be obtained. Failure to obtain stockholder approval may result in a material delay in, or the abandonment of, the merger. Even if the merger is approved by Gemphire Stockholders and NeuroBo Stockholders, certain other specified conditions set forth in the Merger Agreement must be satisfied or waived to complete the merger. These conditions are set forth in the Merger Agreement and described in the section entitled *"The Merger Agreement—Conditions to the Completion of the Merger"* in this proxy statement/prospectus/information statement. Gemphire and NeuroBo cannot assure you that all of the conditions will be satisfied or waived. If the conditions are not satisfied or waived, the merger will not occur or will be delayed, and Gemphire and NeuroBo each may lose some or all of the intended benefits of the merger.

***Litigation relating to the merger could require Gemphire or NeuroBo to incur significant costs and suffer management distraction, and could delay or enjoin the merger.***

Gemphire and NeuroBo could be subject to demands or litigation related to the merger, whether or not the merger is consummated. Such actions may create uncertainty relating to the merger, or delay or enjoin the merger, result in substantial costs to Gemphire or NeuroBo and divert management time and resources.

**Risks Related to the Proposed Reverse Stock Split**

***The proposed Gemphire Reverse Stock Split may not increase the combined organization's stock price over the long-term.***

One of the purposes of the proposed Gemphire Reverse Stock Split is to increase the per-share market price of the Gemphire common stock. It cannot be assured, however, that the proposed Gemphire Reverse Stock Split will accomplish this objective for any meaningful period of time. While it is expected that the reduction in the number of outstanding shares of Gemphire common stock will proportionally increase the market price of Gemphire common stock, it cannot be assured that the proposed Gemphire Reverse Stock Split will increase the market price of Gemphire common stock by a multiple of the proposed Gemphire Reverse Stock Split ratio, or result in any permanent or sustained increase in the market price of Gemphire common stock, which is dependent upon many factors, including the combined organization's business and financial performance, general market conditions and prospects for future success. Thus, while the stock price of the combined organization might meet the continued listing requirements for the Nasdaq Capital Market initially, it cannot be assured that it will continue to do so.

***The proposed Gemphire Reverse Stock Split may decrease the liquidity of the combined organization's common stock.***

Although the Gemphire Board believes that the anticipated increase in the market price of the combined organization's common stock could encourage interest in its common stock and possibly promote greater liquidity for its stockholders, such liquidity could also be adversely affected by the reduced number of shares outstanding after the proposed Gemphire Reverse Stock Split. The reduction in the number of outstanding shares may lead to reduced trading and a smaller number of market makers for Gemphire common stock.

***The proposed Gemphire Reverse Stock Split may lead to a decrease in the combined organization's overall market capitalization.***

Should the market price of the combined organization's common stock decline after the proposed Gemphire Reverse Stock Split, the percentage decline may be greater, due to the smaller number of shares outstanding, than it would have been prior to the proposed Gemphire Reverse Stock Split. A reverse stock split may be viewed negatively by the market and, consequently, can lead to a decrease in the combined organization's overall market capitalization. If the per share market price does not increase in proportion to the proposed Gemphire Reverse Stock Split ratio, then the value of the combined organization, as measured by its stock capitalization, will be reduced. In some cases, the per-share stock price of companies that have effected reverse stock splits subsequently declined back to pre-reverse split levels, and accordingly, it cannot be assured that the total market value of Gemphire common stock will remain the same after the proposed Gemphire Reverse Stock Split is effected, or that the proposed Gemphire Reverse Stock Split will not have an adverse effect on the stock price of Gemphire common stock due to the reduced number of shares outstanding after the proposed Gemphire Reverse Stock Split.

**Risks Related to Gemphire**

**Risks Related to Gemphire's Financial Condition and Gemphire's Need for Additional Financing, and Additional Risks Related to the Merger**

***If the merger is not completed, Gemphire may not be able to otherwise source adequate liquidity to fund its operations, meet its obligations, and continue as a going concern. The Gemphire Board may decide to pursue a dissolution and liquidation of Gemphire. In such an event, there can be no assurances as to the amount or timing of available cash left, if any, to distribute to its stockholders after paying its debts and other obligations and setting aside funds for reserves.***

While Gemphire has entered into the Merger Agreement with NeuroBo, the Closing of the merger may be delayed or may not occur at all and there can be no assurance that the merger will deliver the anticipated benefits Gemphire expects or enhance stockholder value. If the merger is not completed and the Merger Agreement is terminated under certain circumstances, Gemphire may be required to pay NeuroBo a termination fee of $1.0 million. Even if a termination fee is not payable in connection with a termination of the Merger Agreement, Gemphire will have incurred significant fees and expenses, which must be paid whether or not the merger is completed.

Gemphire believes its cash on hand, including amounts received from Beijing SL pursuant to the upfront payment, will be sufficient to fund operations through the fourth quarter of 2019, excluding transaction costs associated with the merger (which Gemphire expects to pay upon the closing), and if for any reason the merger does not close, Gemphire would need to raise additional capital to continue to fund the further development of gemcabene and its operations thereafter, including submission of the additional information requested by the FDA to make a decision regarding lifting the partial clinical hold. Gemphire has based its cash sufficiency estimates on its current business plan and its assumptions may prove to be wrong. Gemphire could utilize its available capital resources sooner than

it currently expects, and it could need additional funding sooner than currently anticipated. Additionally, the process of advancing early stage product candidates and testing product candidates in clinical trials is costly, and the timing of progress in these clinical trials is uncertain. Even if Gemphire raises sufficient funds and decides to continue the development of gemcabene, its ability to successfully transition to profitability will be dependent upon achieving a level of product sales adequate to support its cost structure. Gemphire cannot assure you that it will ever be profitable or generate positive cash flow from operating activities.

Failure to secure any necessary financing in a timely manner and on favorable terms or the failure of the proposed merger to be consummated in a timely manner would require Gemphire to delay or abandon clinical development plans. If, for any reason, the merger does not close, the Gemphire Board may elect to dissolve and liquidate Gemphire's assets. Alternatively, if Gemphire is able to secure additional capital to provide it with necessary financial resources to pursue other options, it may attempt to pursue another strategic transaction like the merger, sell or otherwise dispose of its assets or continue to operate its business. Any of these alternatives would be costly and time-consuming and would require that Gemphire obtain additional funding. Gemphire expects that it would be difficult to secure financing in a timely manner, on favorable terms or at all. Gemphire can make no assurances that it would be able to obtain additional financing or find a partner and close an alternative transaction on terms that are as favorable or more favorable than the terms set forth in the Merger Agreement or that any such alternatives are possible or would be successful, if pursued. To the extent that Gemphire seeks and is able to raise additional capital through the sale of equity or convertible debt securities, Gemphire Stockholders' ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect their rights as a common stockholder. Debt financing or preferred equity financing, if available, may involve agreements that include covenants limiting or restricting Gemphire's ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If Gemphire raises funds through strategic transactions or marketing, distribution, or licensing arrangements with third parties, Gemphire may have to relinquish valuable rights to its technologies, future revenue streams, research programs or product candidates or to grant licenses on terms that may not be favorable to it. Even if Gemphire is able to pursue such alternatives, the failure to complete the merger may result in negative publicity and/or a negative impression of Gemphire in the investment community, could significantly harm the market price of Gemphire common stock and may affect Gemphire's relationship with employees and other partners in the business community.

If the Gemphire Board were to decide to dissolve and liquidate Gemphire's assets, Gemphire would be required to pay all of its debts and contractual obligations, and to set aside certain reserves for potential future claims, and there can be no assurances as to the amount or timing of available cash left, if any, to distribute to stockholders after paying its debts and other obligations and setting aside funds for reserves. In addition, Gemphire may be subject to litigation or other claims related to a dissolution and liquidation. If a dissolution and liquidation were pursued, the Gemphire Board, in consultation with its advisors, would need to evaluate these matters and make a determination about a reasonable amount to reserve. Accordingly, holders of Gemphire common stock would likely lose all or a significant portion of their investment in the event of a liquidation, dissolution or winding up of Gemphire.

Gemphire does not believe that its current expenses are indicative of the costs it may incur in the future in connection with the development and commercialization of any product candidate if it consummates the merger or raises additional capital to continue its operations. Gemphire's future funding requirements will depend on many factors, including:

- its ability to consummate the merger with NeuroBo;

- the level of development and commercialization efforts of Beijing SL with respect to gemcabene and the receipt of milestone and other payments, if any, from Beijing SL under the Beijing SL License Agreement;
- the scope, rate of progress and cost of its preclinical and clinical trials for any product candidate in its future pipeline and results of future clinical trials;
- the cost and timing of regulatory filings and approvals for any product candidates that successfully complete clinical trials;
- the timing and nature of any strategic transactions that Gemphire undertakes, including potential partnerships;
- the effect of competing technological and market developments;
- the cost incurred in responding to actions by activist stockholders; and
- the cost of filing, prosecuting, defending and enforcing its intellectual property rights.

Gemphire currently has an effective shelf registration statement on Form S-3 on file with the SEC which expires in September 2020. The shelf registration statement permits the offering, issuance and sale of up to an aggregate offering price of $175 million of common stock, preferred stock, debt securities, warrants and subscription rights, of which $50 million may be offered, issued and sold under an "at-the-market" (ATM) equity distribution agreement with Piper Jaffray & Co. However, the amounts available under the shelf registration statement, including the ATM program, will be significantly limited as long as Gemphire's public float remains below $75 million, which, given its currently depressed stock price, limits its ability to obtain meaningful funding through the ATM program or the shelf registration statement at this time, although Gemphire could still raise funds through a registration statement on Form S-1 or through private placements.

***Gemphire's recurring operating losses have raised substantial doubt regarding its ability to continue as a going concern.***

Gemphire's recurring operating losses raise substantial doubt about its ability to continue as a going concern. As a result, for the fiscal year ended December 31, 2018, Gemphire's independent registered public accounting firm issued its report on Gemphire's financial statements and expressed substantial doubt about Gemphire's ability to continue as a going concern. Gemphire has no current source of revenue to sustain its present activities beyond the upfront gross payment of $2.5 million paid in October 2019 by Beijing SL under the Beijing SL License Agreement, and as of June 30, 2019, Gemphire had cash and cash equivalents of $3.6 million. If the merger does not occur, beyond the gross payment paid by Beijing SL, Gemphire does not expect to generate revenue, if at all, until and unless the FDA or other applicable regulatory authorities approve gemcabene and it successfully commercializes gemcabene. Accordingly, Gemphire's ability to continue as a going concern will require it to obtain additional financing to fund its development and commercialization operations. Gemphire's current cash balance and uncertainty surrounding Gemphire's ability to continue as a going concern will make it difficult for Gemphire to obtain financing for the continuation of its operations and could result in the loss of confidence by investors, suppliers, contractors and employees. See *"—If the merger is not completed, Gemphire may not be able to otherwise source adequate liquidity to fund its operations, meet its obligations, and continue as a going concern. The Gemphire Board may decide to pursue a dissolution and liquidation of Gemphire. In such an event, there can be no assurances as to the amount or timing of available cash left, if any, to distribute to its stockholders after paying its debts and other obligations and setting aside funds for reserves"* above.

***Gemphire Stockholders may not receive any payment on the CVRs and the CVRs may otherwise expire valueless.***

The right of Gemphire Stockholders to receive any future payment on or derive any value from the CVRs will be contingent solely upon the achievement of the events specified in the CVR Agreement within the time periods specified in the CVR Agreement and the consideration received being greater than the amounts permitted to be retained or deducted by Gemphire under the CVR Agreement. Gemphire may not be able to grant, sale or transfer its rights to gemcabene during the 10-year period after the Closing of the merger, and Gemphire may not receive any future payments pursuant to the Beijing SL License Agreement after the Closing of the merger. If these events are not achieved for any reason within the time periods specified in the CVR Agreement or the consideration received is not greater than the amounts permitted to be retained or deducted by Gemphire, no payments will be made under the CVRs, and the CVRs will expire valueless. NeuroBo (as successor in interest to Gemphire) has agreed to commit $1 million to support the further development of gemcabene through the quarter ending March 31, 2020 (the "***Covenant End Date***"), the funding of which was conditioned on receipt by Gemphire of the $2.5 million upfront gross payment payable under the Beijing SL License Agreement, which was received in October 2019. Following the Effective Time of the merger, neither Gemphire nor NeuroBo will have any obligation to develop gemcabene, or to expend any funds or efforts with respect to gemcabene, other than the $1 million payment, to fund, (i) a toxicity study, (ii) a related Food and Drug Administration ("FDA") submission designed to result in the release of the partial clinical hold with respect to gemcabene, (iii) preparation for an end-of-phase 2 meeting with the FDA, and (iv) consulting costs for up to four of Gemphire's employees to support such activities. The expected cost of such activities is based on estimates and assumptions that may prove to be inaccurate. If $1 million is insufficient to fund the matters set forth above, neither Gemphire nor NeuroBo will have any obligation to provide further funding. Gemphire has no other obligation to support the development of gemcabene or to undertake any effort or expend any resource to divest or otherwise monetize gemcabene or to otherwise maximize the likelihood or amount of any CVR payment. Following the Covenant End Date, Gemphire may, at any time and in its sole and absolute discretion, discontinue any and all further efforts to develop, divest or otherwise monetize gemcabene.

Furthermore, the CVRs will be unsecured obligations of the combined company and all payments under the CVRs, all other obligations under the CVR Agreement and the CVRs and any rights or claims relating thereto will be subordinated in right of payment to the prior payment in full of all current or future senior obligations of the combined company. Finally, the U.S. federal income tax treatment of the CVRs is unclear. There is no legal authority directly addressing the U.S. federal income tax treatment of the receipt of, and payments on, the CVRs, and there can be no assurance that the Internal Revenue Service ("IRS") would not assert, or that a court would not sustain, a position that could result in adverse U.S. federal income tax consequences to holders of the CVRs.

***Gemphire has incurred only losses since inception. Gemphire expects to incur losses for the foreseeable future and may never achieve or maintain profitability.***

Since inception, Gemphire has incurred only operating losses. Gemphire's net losses were $6.7 million and $13.9 million for the six months ended June 30, 2019 and 2018 and $23.6 million, $33.4 million and $14.6 million for the years ended December 31, 2018, 2017 and 2016, respectively. As of June 30, 2019 and December 31, 2018, Gemphire had an accumulated deficit of $90.8 million and $84.1 million, respectively. Gemphire has financed its operations primarily through the issuance and sale of common stock and warrants in public offerings and a private placement, proceeds from its term loan facility with Silicon Valley Bank (SVB) (which was pre-paid and terminated in January 2019) and, prior to its IPO, the issuance of preferred stock and convertible notes in private placements. Gemphire has devoted substantially all of its financial resources and efforts on research and development,

including clinical development of gemcabene. Gemphire expects that it will be a number of years, if ever, before it has a product candidate ready for commercialization. Gemphire expects to continue to incur significant expenses and increased operating losses for the foreseeable future.

To become and remain profitable, Gemphire must develop and eventually commercialize a product with market potential, which would require it to raise additional capital. In addition, this will require Gemphire to be successful in a range of challenging activities, including completing preclinical testing and clinical trials, obtaining regulatory approval for a product candidate, manufacturing, marketing and selling any drug for which Gemphire may obtain regulatory approval and satisfying any post-marketing requirements. Gemphire is in the early stages of most of these activities. Gemphire may never raise enough capital or succeed in these activities and, even if it does, it may never generate revenues that are significant or large enough to achieve profitability.

If Gemphire does achieve profitability, it may not be able to sustain or increase profitability on a quarterly or annual basis. Gemphire's failure to become and remain profitable would decrease the value of Gemphire and could impair its ability to raise capital, maintain its research and development efforts, expand its business or continue its operations and cause Gemphire Stockholders to lose all or part of their investment.

If the merger is not completed and Gemphire is unable to raise sufficient additional funds for the development and commercialization of gemcabene or another product candidate, whether through potential collaborative, partnering or other strategic arrangements or otherwise, or if Gemphire otherwise determines to discontinue the development of gemcabene, Gemphire will likely determine to cease operations. Even if Gemphire is able to raise additional funds to permit the continued development of gemcabene or another product candidate, if Gemphire and/or any potential collaborators are unable to develop and commercialize gemcabene or another product candidate, if development is further delayed or is eliminated, or if sales revenue from any Gemphire product upon receiving marketing approval, if ever, is insufficient, Gemphire may never become profitable and it will not be successful.

***Gemphire is substantially dependent on its remaining employees to facilitate the consummation of the merger.***

As of September 30, 2019, Gemphire had only seven full-time employees. Gemphire's ability to successfully complete the merger depends in large part on its ability to retain certain remaining personnel. Despite Gemphire's efforts to retain these employees, one or more may terminate their employment with Gemphire on short notice. The loss of the services of certain employees could potentially harm Gemphire's ability to consummate the merger, to run its day-to-day business operations, as well as to fulfill its reporting obligations as a public company.

***The pendency of the merger could have an adverse effect on the trading price of Gemphire common stock and its business, financial condition and prospects.***

The pendency of the merger could disrupt Gemphire's business in many ways, including:

- the attention of its remaining management and employees may be directed toward the completion of the merger and related matters and may be diverted from Gemphire's day-to-day business operations; and
- third parties may seek to terminate or renegotiate their relationships with Gemphire as a result of the merger, whether pursuant to the terms of their existing agreements with Gemphire or otherwise.

Should they occur, any of these matters could adversely affect the trading price of Gemphire common stock or harm its business, financial condition and prospects.

***Raising additional capital may cause dilution to Gemphire Stockholders and restrict Gemphire's operations or require Gemphire to relinquish rights to its technologies or product candidates.***

Until such time, if ever, Gemphire expects to finance its cash needs through a combination of equity and debt financings as well as collaborations, strategic alliances and licensing arrangements. Gemphire does not have any committed external sources of funds beyond the $2.5 million upfront gross payment, which was received in October 2019, and potential milestone and royalty payments by Beijing SL pursuant to the Beijing SL License Agreement.

To the extent outstanding warrants or options are ultimately exercised or the number of shares available for future grant under Gemphire's equity incentive plans each year are increased, investors will sustain further dilution.

**Risks Related to the Development of Gemcabene or Any Future Product Candidate**

***Gemphire currently depends entirely on the success of gemcabene, its only product candidate, and the FDA's decision not to lift the partial clinical hold on gemcabene and to request that Gemphire provide additional data and the termination of the investigator-initiated Phase 2a pediatric NAFLD trial, each in August 2018, has severely diminished Gemphire's prospects to continue as a going concern. Gemphire's failure to obtain funding for and to advance the development of gemcabene would likely require it to cease operations. Even if Gemphire is able to obtain funding for and advance the development of gemcabene, Gemphire may never receive marketing approval for, or successfully commercialize, gemcabene for any indication.***

Gemphire currently has only one product candidate, gemcabene, in clinical development, and its business has depended on gemcabene's successful clinical development, regulatory approval and commercialization. In August 2018 Gemphire announced that the FDA, following submission of its two-year carcinogenicity study, requested additional preclinical studies. The FDA stated that Gemphire cannot proceed to its EOP2 meeting or begin its Phase 3 trials, which require more than 6 months of drug exposure, until this partial clinical hold is lifted. This request has significantly delayed the timeline for Gemphire's EOP2 meeting and start of Phase 3 trials. In August 2018, Gemphire announced that the DSMB at Emory University School of Medicine overseeing the investigator-led open label Phase 2a proof-of-concept trial evaluating gemcabene in pediatric patients with non-alcoholic fatty liver disease (NAFLD) recommended that the trial be terminated due to unanticipated problems. Following the announcement of the terminated NAFLD trial, Gemphire's stock price decreased and Gemphire's ability to raise additional capital and to secure potential collaborative, partnering or other strategic arrangements and consequently, Gemphire's prospects to continue as a going concern have been severely diminished. Gemphire expects to finance its cash needs through collaborations, strategic alliances and licensing arrangements and may finance its cash needs through a combination of equity and debt financings. Gemphire does not have any committed external source of funds beyond the upfront gross payment of $2.5 million from Beijing SL, which was received in October 2019, under the Beijing SL License Agreement and there can be no assurance that Gemphire will be successful in acquiring additional funding at levels sufficient to fund its operations or lift the partial clinical hold.

As a result, Gemphire's development activities are focused solely on completing its obligations under the CVR Agreement. NeuroBo (as successor in interest to Gemphire) has agreed to commit $1 million to support the further development of gemcabene through the Covenant End Date, the funding of which was conditioned on receipt by Gemphire of the $2.5 million upfront gross payment payable under the Beijing SL License Agreement. Following the Effective Time of the merger, pursuant to the CVR Agreement, neither Gemphire nor NeuroBo will have any obligation to develop gemcabene, or to expend any funds or efforts with respect to gemcabene, other than the $1 million payment, to fund, (i) a toxicity study, (ii) a related FDA submission designed to result in the release of the partial clinical hold with respect to gemcabene, (iii) preparation for an end-of-phase 2 meeting with the FDA, and (iv) consulting costs for up to four Gemphire employees to support such activities. The

expected cost of such activities is based on estimates and assumptions that may prove to be untrue. If $1 million is insufficient to fund the matters set forth above, neither Gemphire nor NeuroBo will have any obligation to provide further funding. If the merger is not completed and Gemphire is unable to raise sufficient additional funds for the development of gemcabene, whether through potential collaborative, partnering or other strategic arrangements or otherwise, or if Gemphire otherwise determines to discontinue the development of gemcabene, Gemphire will likely determine to cease operations.

Even if Gemphire were to obtain funding to advance the development of gemcabene, the research, testing, manufacturing, labeling, approval, sale, marketing and distribution of a drug product are subject to extensive regulation by the FDA and other regulatory authorities in the United States and other countries, where regulations differ from country to country. Gemphire is not permitted to market gemcabene in the United States until it receives approval of a new drug application (NDA) from the FDA or in any foreign countries until it receives the requisite approval from such countries. Gemphire has not submitted an NDA to the FDA or comparable applications to other regulatory authorities or received marketing approval for gemcabene. Before obtaining regulatory approval for the commercial sale of gemcabene for a particular indication, Gemphire must demonstrate through preclinical testing and clinical trials that gemcabene is safe and effective for use in that target indication. This process can take many years and may be followed by post-marketing studies and surveillance, which will require the expenditure of substantial resources beyond Gemphire's current cash and cash equivalents. Of the large number of drugs in development in the United States, only a small percentage of drugs successfully complete the FDA regulatory approval process and are commercialized. Accordingly, even if Gemphire is able to complete development of gemcabene, Gemphire cannot assure you that gemcabene will be approved or commercialized.

***The FDA has imposed a partial clinical hold on the clinical development of gemcabene which limits human trials to 6 months of drug exposure, and this partial clinical hold has, and may continue to, significantly delay Gemphire's expected initiation of Phase 3 trials, or, if never lifted, may prevent Gemphire from continuing the development of gemcabene.***

In August 2018 Gemphire announced that the FDA, following submission of its two-year carcinogenicity study, requested additional preclinical studies, including a 13 week PPAR-alpha knockout mouse study with gemcabene. The FDA stated that Gemphire cannot proceed to its EOP2 meeting or begin its Phase 3 trials, which require more than 6 months of drug exposure, until this partial clinical hold is lifted. This request has delayed the timeline for Gemphire's EOP2 meeting and start of Phase 3 trials by more than one year. Gemphire is currently conducting all studies requested to resubmit its application to the FDA to lift the clinical hold. However, Gemphire does not have any committed external source of funds beyond the upfront gross payment of $2.5 million from Beijing SL, which was received in October 2019, under the Beijing SL License Agreement, which may be insufficient to lift the partial clinical hold and continue the development of gemcabene. If Gemphire is unable to raise additional funds through equity or debt financings or through collaborations, strategic alliances or licensing arrangements when needed or if the proposed merger is not consummated, Gemphire may be unable to complete the additional preclinical studies needed to lift the partial clinical hold, delay, scale back or discontinue the development of gemcabene or be required to significantly reduce or terminate its operations.

Even if Gemphire were to obtain funding to complete the preclinical studies needed to lift the partial clinical hold, Gemphire cannot assure you that the studies will be completed on time by third party vendors who are involved or that the results will prove satisfactory for the FDA to lift the hold. It is possible that the FDA may request additional studies and information prior to lifting the hold which would significantly delay the time and cost to initiating Phase 3 trials and future development of gemcabene. If the FDA decisions further delay or increase the costs of Gemphire's clinical plans, this could jeopardize Gemphire's ability to commercialize gemcabene by April 2024, as required by the Pfizer Agreement. Finally, Gemphire cannot assure you that the partial clinical hold will ever be lifted in which case gemcabene will never receive NDA approval or be commercialized.

***Gemphire's Phase 2a clinical trial of gemcabene in Pediatric NAFLD was terminated by the Data and Safety Monitoring Board (DSMB) of the principal investigator following the occurrence of unanticipated problems. This trial termination and the unanticipated problems could have negative impacts on the clinical development of gemcabene.***

Gemphire announced on August 10, 2018 that the DSMB at Emory University School of Medicine overseeing the investigator-led open label Phase 2a proof-of-concept trial evaluating gemcabene in pediatric patients with non-alcoholic fatty liver disease (NAFLD) recommended that the trial be terminated due to unanticipated problems. Data on the first three patients who underwent 12 weeks of treatment showed that all three experienced an increase in liver fat content, as measured by MRI-PDFF. Two of the three patients also demonstrated increases in ALT; however, their baseline ALT levels were elevated prior to receiving gemcabene. The increase in liver fat was deemed an unanticipated problem by the trial investigator because it was an unexpected consistent pattern of worsening of the disease, rather than improvement, creating risk to the patients, which the investigator believed was likely due to the drug. Additional data that has come to light subsequently showed that during the trial the patients were not fully compliant with taking gemcabene and their life styles could have potentially impacted the findings. In addition to the first three patients, another three patients enrolled in the trial were taken off gemcabene and early termination visits were conducted. The DSMB recommended additional follow-up of the study subjects to gather additional safety data and this activity remains underway. The DSMB will provide Gemphire with a written report of their findings in the future, likely the fourth quarter of 2019, once all the patient results have been collated and analyzed.

Gemphire intends to work closely with the physicians at the clinical trial site, and other KOLs to analyze all of the results and identify potential reasons for these unanticipated problems in the pediatric NAFLD study but cannot assure you that it will be able to determine the reasons for the unanticipated problems.

Following the termination of the pediatric NAFLD trial in August 2018, the investigator of the ongoing Phase 2a FPL study conducted interim analyses of the patients enrolled at that point in her trial including MRI-PDFF scans and looking for signs of undesirable side effects before continuing the study. In consultation with her DSMB the principal investigator decided to continue the FPL study and completed enrollment in fourth quarter of 2018. Top-line results were reported in June 2019.

Gemphire cannot assure you that the unanticipated problems observed in the pediatric NAFLD trial will not be seen in the FPL or future trials or that serious adverse events (SAEs) will not occur in future trials. Gemphire also cannot assure you that the unanticipated problems observed in the pediatric NAFLD trial will not result in the FDA or other regulatory authorities requesting additional analyses of Gemphire's previously completed clinical trials, including the three Phase 2b trials in dyslipidemia completed in 2017 and 2018.

If gemcabene is associated with adverse effects or undesirable side effects in preclinical testing or clinical trials or has characteristics that are unexpected in preclinical testing or clinical trials, gemcabene could be less attractive to potential collaborators. Gemphire does not expect that gemcabene will continue to be developed other than through collaborations, strategic alliances and licensing arrangements.

***Obtaining approval of an NDA is an extensive, lengthy, expensive and uncertain process, and the FDA may delay, limit or deny approval of gemcabene for many reasons, including:***

- the data collected from preclinical studies and clinical trials of gemcabene may not be sufficient to support the submission of an NDA or removal of the partial clinical hold;

- Gemphire may not be able to demonstrate to the satisfaction of the FDA that gemcabene is safe and effective for any indication;
- the results of clinical trials may not meet the level of statistical significance or clinical significance required by the FDA for approval;
- the FDA may disagree with the number, design, size, conduct or implementation of Gemphire's clinical trials;
- the FDA may not find the data from preclinical studies and clinical trials sufficient to demonstrate that gemcabene's clinical and other benefits outweigh its safety risks;
- the FDA may disagree with Gemphire's interpretation of data from preclinical studies or clinical trials;
- the FDA may not accept data generated at Gemphire's clinical trial sites;
- the FDA may have difficulties scheduling an advisory committee meeting in a timely manner or the advisory committee may recommend against approval of Gemphire's application or may recommend that the FDA require, as a condition of approval, additional preclinical studies or clinical trials, limitations on approved labeling or distribution and use restrictions;
- the FDA may require development of a risk evaluation and mitigation strategy (REMS) as a condition of approval;
- the FDA may identify deficiencies in the manufacturing processes or facilities of third party manufacturers with which Gemphire enters into agreements for clinical and commercial supplies; or
- the FDA may change its approval policies or adopt new regulations.

***The results of previous clinical trials may not be predictive of future results, and the results of Gemphire's current clinical trials if funded in the future may not satisfy the requirements of the FDA or non-U.S. regulatory authorities.***

Significant additional clinical development, financial resources and personnel would be required to obtain necessary regulatory approvals for gemcabene and to develop it into a commercially viable product. Preclinical and clinical testing is expensive, can take many years to complete and has an uncertain outcome. The results from the prior preclinical studies and clinical trials for gemcabene discussed elsewhere in this proxy statement/prospectus/information statement may not necessarily be predictive of the results of future preclinical studies or clinical trials. Many companies in the pharmaceutical and biotechnology industries (including those with greater resources and experience than Gemphire) have suffered significant setbacks in late-stage clinical trials after achieving positive results in early stage development, and Gemphire cannot be certain that gemcabene will not face similar setbacks. These setbacks have been caused by, among other things, preclinical findings made while clinical trials were underway or safety or efficacy observations made in clinical trials, including previously unreported AEs. Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that believed their product candidates performed satisfactorily in preclinical studies and clinical trials nonetheless have failed to obtain FDA approval. If any future clinical trials of gemcabene fail to produce positive results, the development timeline and regulatory approval and commercialization prospects for gemcabene and its business and financial prospects, would be adversely affected.

Further, gemcabene may not be approved even if Phase 3 registration trials are pursued and completed and it achieves its primary endpoint in such trials. The FDA or non-U.S. regulatory authorities may disagree with the trial design and its interpretation of data from preclinical studies and

clinical trials. In addition, any of these regulatory authorities may change requirements for the approval of a product candidate even after reviewing and providing comments or advice on a protocol for a pivotal clinical trial that has the potential to result in approval by the FDA or another regulatory authority. Furthermore, any of these regulatory authorities may also approve a product candidate for fewer or more limited indications than it requests or may grant approval contingent on the performance of costly post-marketing clinical trials. In addition, before obtaining regulatory approvals for the commercial sale of any product candidate for any target indication, Gemphire must demonstrate with substantial evidence gathered in preclinical studies and adequate and well-controlled clinical studies, and, with respect to approval in the United States, to the satisfaction of the FDA, that the product candidate is safe and effective for use for that target indication.

On July 23, 2019, Gemphire entered into the Beijing SL License Agreement with Beijing SL pursuant to which Gemphire granted Beijing SL an exclusive royalty-bearing license to research, develop, manufacture and commercialize pharmaceutical products comprising, as an active ingredient, gemcabene in the Territory. Under the terms of the Beijing SL License Agreement, Beijing SL will be responsible, at its expense, for developing and commercializing products containing gemcabene in the Territory, with certain assistance from Gemphire. Gemphire cannot assure you that the FDA or non-U.S. regulatory authorities or regulatory authorities in the Territory would consider Gemphire's planned clinical trials to be sufficient to serve as the basis for approval of gemcabene for any indication. The FDA and non-U.S. regulatory authorities retain broad discretion in evaluating the results of Gemphire's clinical trials and in determining whether the results demonstrate that gemcabene is safe and effective. If Gemphire or Beijing SL is required to conduct clinical trials of gemcabene in addition to those planned prior to approval, such as a cardiovascular outcomes trial, substantial additional funds will be needed, gemcabene's development pathway will be delayed, and Gemphire cannot assure you that the results of any such outcomes trial or other clinical trials will be sufficient for approval.

***If clinical trials of gemcabene or any future product candidate, if funded and pursued, fail to demonstrate safety and efficacy to the satisfaction of regulatory authorities or do not otherwise produce positive results, Gemphire or a potential collaborator, such as Beijing SL, may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of such product candidate.***

Before obtaining marketing approval from regulatory authorities for the sale of gemcabene, Gemphire must complete preclinical development (including, but not limited to, a subchronic (13 week) study of gemcabene in PPARa knock-out mice and a study of gemcabene in in vitro PPAR transactivation assays using monkey and canine PPAR isoforms), and supportive pharmacology studies and Phase 2 and Phase 3 clinical trials to demonstrate the safety and efficacy in humans. Clinical testing is expensive, difficult to design and implement, can take many years to complete and is uncertain as to outcome. A failure of one or more clinical trials can occur at any stage of development.

Gemphire or a potential collaborator, may experience numerous unforeseen events during, or as a result of, clinical trials that could result in increased development costs, delay, limit or prevent gemcabene or other product candidate that may be pursued in the future from receiving marketing approval or being commercialized, including:

- regulators or institutional review boards (IRBs) may not authorize Gemphire, a potential collaborator or their investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site;

- government or regulatory delays and changes in regulatory requirements, policy and guidelines may require Gemphire or a potential collaborator to perform additional clinical trials or use substantial additional resources to obtain regulatory approval;

- Gemphire or a potential collaborator may have delays in reaching or fail to reach agreement on acceptable clinical trial contracts or clinical trial protocols with prospective trial sites;
- clinical trials may produce negative or inconclusive results, and Gemphire or a potential collaborator may decide, or regulators may require Gemphire or a potential collaborator, to conduct additional clinical trials or abandon product development programs;
- the number of patients required for clinical trials may be larger than Gemphire or a potential collaborator anticipates, enrollment in these clinical trials may be slower than Gemphire or a potential collaborator anticipates or participants may drop out of these clinical trials at a higher rate than Gemphire or a potential collaborator anticipates;
- Gemphire's or a potential collaborator's third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to Gemphire or a potential collaborator in a timely manner, or at all;
- Gemphire's or a potential collaborator's patients or medical investigators may be unwilling to follow its clinical trial protocols;
- Gemphire a potential collaborator might have to suspend or terminate clinical trials for various reasons, including a finding that the participants are being exposed to unacceptable health risks;
- the cost of clinical trials may be greater than Gemphire a potential collaborator anticipates;
- the supply or quality of any product candidate or other materials necessary to conduct clinical trials may be insufficient or inadequate; and
- the product candidate may have undesirable side effects or other unexpected characteristics, causing Gemphire, a potential collaborator or their investigators, regulators or IRBs to suspend or terminate the trials.

***If Gemphire or a potential collaborator, such as Beijing SL, experiences delays or difficulties in the enrollment of patients in clinical trials, its receipt of necessary regulatory approvals could be delayed or prevented.***

Gemphire or its future collaborators may not be able to initiate or continue clinical trials for gemcabene or any future product candidate if Gemphire is unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or analogous regulatory authorities outside the United States. Orphan indications, in particular, have small populations, and it may be difficult for Gemphire to locate and enroll sufficient patients in trials for orphan-designated indications. Patient enrollment can be affected by many factors, including:

- severity of the disease under investigation;
- availability and efficacy of medications already approved for the disease under investigation;
- eligibility criteria for the trial in question;
- competition for eligible patients with other companies conducting clinical trials for product candidates seeking to treat the same indication or patient population;
- Gemphire's payments for conducting clinical trials;
- difficulties in other clinical trials;
- perceived risks and benefits of the product candidate under study;
- efforts to facilitate timely enrollment in clinical trials;
- patient referral practices of physicians;

- the ability to monitor patients adequately during and after treatment;
- proximity and availability of clinical trial sites for prospective patients; and
- events that impact clinical trial sites.

Two investigator-initiated Phase 2a clinical trials of gemcabene commenced in late 2017 or early 2018. The pediatric NAFLD trial was terminated prematurely in the third quarter of 2018 and treatments were stopped after only 6 patients had been enrolled due to "unanticipated problems" (see details above). The patients were monitored by the investigator for 12 months post final dose and final results are expected to become available in the fourth quarter of 2019 from the investigator. In the Phase 2a adult FPL trial, patient enrollment was completed in fourth quarter 2018 and topline data was reported in June 2019 from the principal investigator. Gemphire's inability to fully enroll and complete the pediatric NAFLD trial will likely have an impact on Gemphire's future plans in this patient population including potentially abandoning additional trials altogether. In addition, if unforeseen events arise in the adult FPL trial, if a regulatory authority believes that the unanticipated problems observed in the NAFLD trial or other events constitute an adverse effect caused by gemcabene, or if other effects are identified during clinical trials that Gemphire or any potential collaborators may conduct in the future:

- Gemphire or any potential collaborators may be required to conduct additional preclinical or clinical trials;
- regulatory authorities may be unwilling to approve gemcabene;
- Gemphire's reputation in the marketplace may suffer; and
- Gemphire may become the target of lawsuits, including class action suits.

Any of these events could cause significant delays or may require Gemphire to abandon future clinical trials altogether. Further delays in Gemphire's clinical trials or modifications to any future trial plans may result in additional increased development costs for gemcabene and cause Gemphire's stock price to decline.

***Gemphire or others could discover that gemcabene or any product candidate Gemphire may pursue in the future lacks sufficient efficacy, or that it causes undesirable side effects that were not previously identified, which could delay or prevent regulatory approval or commercialization.***

Because gemcabene has been tested in relatively small patient populations and for limited durations to date, it is possible that Gemphire's clinical trials have or will indicate an apparent positive effect of gemcabene that is greater than the actual positive effect, if any, or that additional and unforeseen side effects may be observed as its development progresses. The discovery that gemcabene lacks sufficient efficacy, or that it causes undesirable side effects, including side effects not previously identified in Gemphire's previously completed clinical trials, such as the unanticipated problems that occurred in connection with the pediatric NAFLD study, could cause Gemphire or regulatory authorities to interrupt, delay or discontinue clinical trials and could result in the denial of regulatory approval by the FDA or other non-U.S. regulatory authorities for any or all targeted indications. See *"—Gemphire's Phase 2a clinical trial of gemcabene in Pediatric NAFLD was terminated by the Data and Safety Monitoring Board (DSMB) of the principal investigator following the occurrence of unanticipated problems. This trial termination and the unanticipated problems could have negative impacts on the clinical development of gemcabene*" above. Across all human trials conducted to date, the most common adverse events reported have been headache, weakness, nausea, dizziness, upset stomach, infection, abnormal bowel movements, myalgia and abnormal kidney function tests.

The discovery that gemcabene lacks sufficient efficacy or that it causes undesirable side effects that were not previously identified could delay or prevent regulatory approval and prevent Gemphire from

commercializing such product candidate and generating revenues from its sale. In addition, if Gemphire or potential collaborator receives marketing approval for gemcabene and Gemphire or others later discover that it is less effective, or identify undesirable side effects caused by gemcabene:

- regulatory authorities may withdraw their approval of the product;
- Gemphire may be required to recall the product, change the way this product is administered, conduct additional clinical trials or change the labeling or distribution of the product (including REMS);
- additional restrictions may be imposed on the marketing of, or the manufacturing processes for, the product;
- Gemphire may be subject to fines, injunctions or the imposition of civil or criminal penalties;
- Gemphire could be sued and held liable for harm caused to patients;
- the product may be rendered less competitive and sales may decrease; or
- Gemphire's reputation may suffer generally both among clinicians and patients.

Any one or a combination of these events could prevent Gemphire from achieving or maintaining market acceptance of the affected product or could substantially increase the costs and expenses of commercializing the product, which in turn could delay or prevent Gemphire from generating significant, or any, revenues from the sale of the product.

***Gemphire depends on intellectual property licensed from Pfizer for gemcabene, and the termination of this license would harm Gemphire's business, and if the merger is completed, the CVR holders may not receive any proceeds from gemcabene.***

Pfizer granted Gemphire a worldwide exclusive license to certain patent rights and a non-exclusive royalty bearing right and license to certain related data to make, use, develop, commercialize, import and otherwise exploit the clinical product candidate gemcabene. Under the license agreement, as amended and restated in August 2018, either party may terminate the license agreement for the other party's material breach following a cure period or immediately upon certain insolvency events relating to the other party. Pfizer may immediately terminate the license agreement in the event that (i) Gemphire or any of its affiliates or sublicensees contests or challenges, or supports or assists any third party to contest or challenge, Pfizer's ownership of or rights in, or the validity, enforceability or scope of, any of the patents licensed under the license agreement or (ii) Gemphire or any of its affiliates or sublicensees fails to achieve the first commercial sale in at least one country by April 16, 2024. Furthermore, upon termination of the license agreement by Pfizer for any of the foregoing reasons, Gemphire grants Pfizer, pursuant to the license agreement, a non-exclusive, fully paid-up, royalty free, worldwide, transferrable, perpetual and irrevocable license to use any intellectual property rights arising from the development or commercialization of gemcabene by Gemphire and any trademarks identifying gemcabene and agree to transfer regulatory filings and approvals to Pfizer or permit Pfizer to cross-reference and rely on such regulatory filings and approvals for gemcabene.

Disputes may arise between Gemphire and Pfizer regarding intellectual property subject to this license agreement, including with respect to:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- whether and the extent to which Gemphire's technology and processes infringe on intellectual property of Pfizer that is not subject to the licensing agreement;
- the amount and timing of milestone and royalty payments;
- the rights of Pfizer under the license agreement;

- Gemphire's right to sublicense patent and other rights to third parties under collaborative development relationships; and
- the ownership of inventions and know-how resulting from the joint creation or use of intellectual property by Pfizer and Gemphire and its partners.

Any disputes with Pfizer may prevent or impair Gemphire's ability to maintain its current licensing arrangement. Gemphire depends on the intellectual property and the historical preclinical and clinical data package licensed from Pfizer to develop and commercialize gemcabene. Termination of Gemphire's license agreement could result in the loss of significant rights and would harm its ability to further develop and commercialize gemcabene. In addition, Pfizer retains the right to make, use and import gemcabene solely for internal research purposes.

In addition, if the merger is completed and the combined company breaches its obligations under the license agreement, resulting in a termination of the agreement, then the combined company may not receive proceeds from the transfer of rights to gemcabene. If the combined company does not receive any such proceeds, then the CVR holders would not receive any payments on the CVR.

***Beijing SL has exclusive rights for the development and commercialization of gemcabene in mainland China, Hong Kong, Macau and Taiwan (collectively, the "Territory"). Beijing SL's failure to timely develop or commercialize gemcabene would have a material adverse effect on Gemphire's business and operating results.***

Gemphire granted Beijing SL an exclusive royalty-bearing license to research, develop, manufacture and commercialize pharmaceutical products comprising, as an active ingredient, gemcabene, in the Territory, subject to certain rights that Gemphire retained in the Territory. The collaboration with Beijing SL may not be successful due to several factors, including the following:

- gemcabene may fail to demonstrate in clinical trials sufficient efficacy with an acceptable safety profile to support regulatory approval;
- Beijing SL may not be able to obtain from Gemphire or manufacture gemcabene in a timely or cost-effective manner;
- Beijing SL may be unable to obtain regulatory approval to commercialize gemcabene even if preclinical and clinical testing is successful;
- Beijing SL may not succeed in obtaining sufficient reimbursement for gemcabene if approved; and
- existing or future products developed by competitors may be less expensive, safer or more effective than gemcabene.

In addition, Gemphire could be adversely affected by:

- Beijing SL's failure to timely perform its obligations under the Beijing SL License Agreement;
- Beijing SL's failure to timely or fully develop or effectively commercialize gemcabene; or
- contractual disputes or other disagreements between Gemphire and Beijing SL, including those regarding the development, manufacture, and commercialization of gemcabene, interpretation of the Beijing SL Agreement, and ownership of proprietary rights.

Any of the foregoing could adversely impact the likelihood and timing of any milestone or royalty payments Gemphire is eligible to receive under the Beijing SL License Agreement and could result in a material adverse effect on its business, results of operations and prospects and would likely cause its stock price to decline.

**Risks Related to Government Regulation**

***Gemcabene is subject to a partial clinical hold with respect to clinical trials of longer than six months in duration until the FDA determines to release such hold, which may lead to a significant delay in the commencement of long-term clinical trials by Gemphire or any potential collaborators or the failure of gemcabene to obtain marketing approval.***

In 2004, the FDA determined that gemcabene was a potential peroxisome proliferator-activated receptor (PPAR) agonist. As a result, the FDA imposed a partial clinical hold, which restricts Gemphire from conducting clinical trials for gemcabene beyond six months in duration and required Gemphire to conduct two-year rat and mouse carcinogenicity studies. The FDA has issued these notices to all sponsors of product candidates with PPAR properties based on preclinical studies. Gemphire submitted the results of its two-year rat and mouse carcinogenicity studies to the FDA, together with results from a short-term, 8 day study where, in PPAR-a knockout mice, gemcabene did not induce known markers of peroxisome proliferation, providing evidence that gemcabene works through PPAR-a. In response the FDA has requested that, as part of a complete response, Gemphire provide additional data including a subchronic (13 week) study in PPAR-a knock-out mice and PPAR transactivation assays using monkey and canine PPAR isoforms, to further understand the human relevance of the preclinical findings. Gemphire completed the *in vitro* PPAR-a transactivation study, and Gemphire has initiated the CRO-related activities to conduct the PPAR-a knockout mouse study. Gemphire expects to submit the request to the FDA to lift the partial clinical hold in January 2020.

The future clinical development of gemcabene may be delayed due to these clinical restrictions and additional oversight by the FDA, as occurred when the FDA requested the additional data beyond the results of Gemphire's two-year rat and mouse carcinogenicity studies. If the results of the subchronic (13 week) study in PPAR-a knock-out mice and the PPAR transactivation assays using monkey and canine PPAR isoforms do not address FDA concerns related to the partial clinical hold, Gemphire's Phase 3 long-term safety exposure registration trials of longer than six months could be further delayed or the FDA may never release the partial clinical hold. Also, the findings in Gemphire's preclinical studies could impact the NDA review, and, if approved, labeling and use of gemcabene.

The completion of any additional studies requested by the FDA and the future clinical development of gemcabene is dependent on Gemphire obtaining additional funding. Gemphire does not have any committed external source of funds beyond the upfront gross payment of $2.5 million due from Beijing SL under the Beijing SL License Agreement and there can be no assurance that Gemphire will be successful in acquiring additional funding at levels sufficient to fund its operations. NeuroBo (as successor in interest to Gemphire) has agreed to commit $1 million to support the further development of gemcabene through the Covenant End Date, the funding of which was conditioned on receipt by Gemphire of the $2.5 million upfront gross payment payable under the Beijing SL License Agreement, which was received in October 2019. Following the Effective Time of the merger, neither Gemphire nor NeuroBo will have any obligation to develop gemcabene, or to expend any funds or efforts with respect to gemcabene, other than the $1 million payment, to fund, (i) a toxicity study, (ii) a related FDA submission designed to result in the release of the partial clinical hold with respect to gemcabene, (iii) preparation for an end-of-phase 2 meeting with the FDA, and (iv) consulting costs for up to four of Gemphire's employees to support such activities. The expected cost of such activities is based on estimates and assumptions that may prove to be untrue. If $1 million is insufficient to fund the matters set forth above, neither Gemphire nor NeuroBo will have any obligation to provide further funding. Gemphire has no other obligation to support the development of gemcabene, including to release the partial clinical hold.

***Gemphire or any potential collaborator may never receive regulatory approval to market gemcabene outside of the United States.***

The activities associated with the development and commercialization of product candidates are subject to comprehensive regulation by the FDA, other regulatory agencies in the United States and by comparable authorities in other countries. Failure to obtain regulatory approval for gemcabene will prevent Gemphire or any potential collaborator from commercializing gemcabene. Gemphire has not received regulatory approval to market gemcabene in any jurisdiction, and it does not expect to obtain FDA or any other regulatory approvals to market gemcabene for the foreseeable future, if at all. The process of obtaining regulatory approvals is expensive, often takes many years, if approval is obtained at all, and can vary substantially based upon the type, complexity and novelty of the product candidates involved.

Changes in the regulatory approval policy during the development period, changes in or the enactment of additional regulations or statutes, or changes in regulatory review for a submitted product application may cause delays in the approval or rejection of an application. Even if the FDA or another regulatory authority approves a product candidate, the approval may impose significant restrictions on the indicated uses, conditions for use, labeling, advertising, promotion, marketing and/or production of such product, and may impose ongoing requirements for post-approval studies, including additional research and development and clinical trials. Any FDA approval may also impose Risk Evaluation Mitigation Strategy ("REMS") on a product if the FDA believes there is a reason to monitor the safety of the drug in the market place. REMS may include requirements for additional training for health care professionals, safety communication efforts and limits on channels of distribution, among other things. The sponsor would be required to evaluate and monitor the various REMS activities and adjust them if need be. The FDA and other regulatory authorities also may impose various civil or criminal sanctions for failure to comply with regulatory requirements, including withdrawal of product approval.

Furthermore, the approval procedure and the time required to obtain approval varies among countries and can involve additional testing beyond that required by the FDA. Approval by one regulatory authority does not ensure approval by regulatory authorities in other jurisdictions. Failure to obtain approval in one jurisdiction may negatively impact Gemphire's ability to obtain approval elsewhere.

The FDA and foreign regulatory authorities have substantial discretion in the approval process and may refuse to accept any application or may decide that Gemphire's data is insufficient for approval and require additional preclinical, clinical or other studies, including Phase 4 clinical studies. In addition, varying interpretations of the data obtained from preclinical and clinical testing could delay, limit, or prevent regulatory approval of a product candidate. Even if Gemphire submits an application to the FDA and foreign regulatory authorities for marketing approval of gemcabene, it may not result in any marketing approvals.

Gemphire does not expect to receive regulatory approval for the commercial sale of gemcabene for the foreseeable future, including through a potential collaborator, if at all. The inability to obtain approval from the FDA or foreign regulatory authorities for gemcabene would prevent Gemphire or any potential collaborators from commercializing gemcabene in the United States or other countries. See the section entitled "*Gemphire Business—Government Regulation*" in this proxy statement/prospectus/information statement for additional information regarding risks associated with marketing approval, as well as risks related to potential post-approval requirements.

***Gemphire may seek to avail itself of mechanisms to expedite and/or reduce the cost for development or approval of gemcabene or any other product candidate it may pursue in the future, such as fast track designation or Orphan Drug designation, but such mechanisms may not actually lead to a faster or less expensive development or regulatory review or approval process.***

Gemphire may seek fast track designation, priority review, Orphan Drug designation, or accelerated approval for gemcabene or any other product candidate Gemphire may pursue in the future. For example, if a drug is intended for the treatment of a serious or life-threatening condition and the drug demonstrates the potential to address unmet medical needs for this condition, the drug sponsor may apply for FDA fast track designation. However, the FDA has broad discretion with regard to these mechanisms, and even if Gemphire believes a particular product candidate is eligible for any such mechanism, it cannot assure you that the FDA would decide to grant it. Even if Gemphire does obtain fast track or priority review designation or pursue an accelerated approval pathway, it may not experience a faster and/or less costly development process, review or approval compared to conventional FDA procedures. The FDA may withdraw a particular designation if it believes that the designation is no longer supported by data from Gemphire's clinical development program.

***A breakthrough therapy designation by the FDA for a product candidate may not lead to a faster development or regulatory review or approval process, and it may not increase the likelihood that a product candidate will receive marketing approval.***

Depending on the results of Gemphire's clinical trials, Gemphire may seek a breakthrough therapy designation for gemcabene or any other product candidate it may pursue in the future. A breakthrough therapy is defined as a drug that is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition, and preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints. For drugs that are designated as breakthrough therapies, interaction and communication between the FDA and the sponsor can help to identify the most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens.

Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if Gemphire believes a product candidate meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. Gemphire cannot be sure that its evaluation of a product candidate as qualifying for breakthrough therapy designation will meet the FDA's requirements. In any event, the receipt of a breakthrough therapy designation for a product candidate may not result in a faster development process, review or approval compared to conventional FDA procedures and does not assure ultimate approval by the FDA. In addition, even if one or more product candidates qualifies as a breakthrough therapy, the FDA may later decide that the product no longer meets the conditions for qualification or the time period for FDA review or approval will not be shortened.

***The uncertainty associated with pharmaceutical reimbursement and related matters may increase the difficulty and cost for Gemphire and its future collaborators to obtain marketing approval of Gemphire's product candidate and affect its pricing.***

In the United States and some foreign jurisdictions, there have been a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of a product candidate, restrict or regulate post-approval activities and affect Gemphire's ability, or the ability of Gemphire's future collaborators, to profitably sell any drug for which Gemphire, or they, obtain marketing approval. Gemphire expects that current laws, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and cause downward pressure on the price that Gemphire, or its future collaborators, may receive for any approved drug.

For example, in March 2010, President Obama signed into law the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act (collectively, the PPACA). This is a sweeping law intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, improve healthcare quality, enhance remedies against fraud and abuse, add new transparency requirements for certain components of the health care and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms. Among the provisions of the PPACA of importance to gemcabene and any future product candidates are:

- an annual, nondeductible fee on any entity that manufactures or imports specified branded prescription drugs and biologic agents, apportioned among these entities according to their market share in certain government healthcare programs;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13.0% of the average manufacturer price for branded and generic drugs, respectively;
- a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected;
- extension of a manufacturer's Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to certain individuals with income at or below 133% of the federal poverty level, thereby potentially increasing a manufacturer's Medicaid rebate liability;
- a Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for a manufacturer's outpatient drugs to be covered under Medicare Part D;
- expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program; and
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

There have been judicial and Congressional challenges and amendments to certain aspects of the PPACA, and Gemphire expects there will be additional challenges and amendments to, and attempts to repeal, the PPACA in the future. In addition, other legislative changes have been proposed and adopted since the PPACA was enacted. These new laws have resulted in additional reductions in Medicare and other healthcare funding and otherwise may affect the prices Gemphire may obtain for any product candidate for which marketing approval is obtained. Any reduction in reimbursement from Medicare or other government-funded programs may result in a similar reduction in payments from private payors. Moreover, recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products. The implementation of cost containment measures or other healthcare reforms may prevent Gemphire from being able to generate revenue, attain profitability or commercialize its drugs.

Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical products. Gemphire cannot be sure whether additional legislative changes will be enacted, or whether the FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals of a product candidate, if any, may be. In addition, increased scrutiny by the U.S. Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject Gemphire

and its future collaborators to more stringent drug labeling and post-marketing testing and other requirements.

***Governments outside of the United States tend to impose strict price controls, which may adversely affect Gemphire's revenues from the sales of a drug, if any.***

In some countries, particularly the countries of the European Union, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a drug. To obtain reimbursement or pricing approval in some countries, Gemphire, or its future collaborators, may be required to conduct a clinical trial that compares the cost-effectiveness of its drug to other available therapies. If reimbursement of Gemphire's drug is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, its business could be harmed.

***Gemphire's relationships with healthcare providers and third-party payors will be subject to applicable fraud and abuse and other healthcare laws and regulations, which could expose it to criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings, among other penalties and consequences.***

Healthcare providers and third-party payors will play a primary role in the recommendation and prescription of any product candidate for which Gemphire obtains marketing approval. Gemphire's current and future arrangements with third-party payors and customers may expose it to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which it markets, sells and distributes any product candidate for which Gemphire obtains marketing approval. Restrictions and obligations under applicable federal and state healthcare laws and regulations include the following:

- the federal Anti-Kickback Statute prohibits, among other things, persons and entities from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made under a federal healthcare program such as Medicare and Medicaid;

- the federal false claims and civil monetary penalties laws, including the civil False Claims Act imposes criminal and civil penalties, including civil whistleblower or qui tam actions, against individuals or entities for knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government;

- the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA) imposes criminal and civil liability for, among other things, executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters;

- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, and its implementing regulations, also imposes obligations, including mandatory contractual terms, on certain people and entities with respect to safeguarding the privacy, security and transmission of individually identifiable health information;

- the federal Physician Payments Sunshine Act under the PPACA requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid, or the Children's Health Insurance Program, with specific exceptions, to report annually to the Centers for Medicare & Medicaid Services within the U.S. Department of Health and Human Services information related to physician payments and other transfers of value and physician ownership and investment interests; and

- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers, and some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government in addition to requiring drug manufacturers to report information related to payments to physicians and other health care providers or marketing expenditures. Certain state and foreign laws also govern the privacy and security of health information in ways that differ from each other and often are not preempted by HIPAA, thus complicating compliance efforts.

Efforts to ensure that Gemphire's current and future business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that Gemphire's business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If Gemphire's operations are found to be in violation of any of these laws or any other governmental regulations that may apply to it, Gemphire may be subject to significant civil, criminal and administrative penalties, damages, fines, exclusion from government funded healthcare programs, such as Medicare and Medicaid, disgorgement, individual imprisonment, contractual damages, reputational harm, diminished profits and future earnings, and the curtailment or restructuring of its operations. If any of the physicians or other providers or entities with whom Gemphire expects to do business is found to not be in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs. Defending against any such actions can be costly, time-consuming and may require significant financial and personnel resources. Therefore, even if Gemphire is successful in defending against any such actions that may be brought against it, its business may be impaired.

***Gemphire is subject to U.S. and certain foreign export and import controls, sanctions, embargoes, anti-corruption laws, and anti-money laundering laws and regulations. Compliance with these legal standards could impair its ability to compete in domestic and international markets. Gemphire can face criminal liability and other serious consequences for violations which can harm its business.***

Gemphire is subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls, the U.S. Foreign Corrupt Practices Act of 1977, as amended, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, and other state and national anti-bribery and anti-money laundering laws in the countries in which it conducts activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, contractors, and other partners from authorizing, promising, offering, or providing, directly or indirectly, improper payments or anything else of value to recipients in the public or private sector. Gemphire may engage third parties for clinical trials outside of the United States, to sell its products abroad once Gemphire enters a commercialization phase, and/or to obtain necessary permits, licenses, patent registrations, and other regulatory approvals. Gemphire has direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. Gemphire can be held liable for the corrupt or other illegal activities of its employees, agents, contractors, and other partners, even if it does not explicitly authorize or have actual knowledge of such activities. Gemphire's violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences.

***Gemphire's employees may engage in misconduct or other improper activities, including violating applicable regulatory standards and requirements or engaging in insider trading, which could significantly harm its business.***

Gemphire is exposed to the risk of employee fraud or other misconduct. Misconduct by employees could include intentional failures to comply with the regulations of the FDA and applicable non-U.S. regulators, provide accurate information to the FDA and applicable non-U.S. regulators, comply with healthcare fraud and abuse laws and regulations in the United States and abroad, report financial information or data accurately or disclose unauthorized activities to Gemphire. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Employee misconduct could also involve the improper use of, including trading on, information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to Gemphire's reputation. It is not always possible to identify and deter employee misconduct, and the precautions it takes to detect and prevent this activity may be ineffective in controlling unknown or unmanaged risks or losses or in protecting it from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against Gemphire, and it is not successful in defending itself or asserting its rights, those actions could have a significant impact on its business, including the imposition of significant civil, criminal and administrative penalties, damages, fines, exclusion from government funded healthcare programs such as Medicare and Medicaid, disgorgement, individual imprisonment, contractual damages, reputational harm, diminished profits and future earnings, and the curtailment or restructuring of Gemphire's operations.

***The FDA and other regulatory agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses. If Gemphire is found to have improperly promoted off-label uses, it may become subject to significant liability.***

The FDA and other regulatory agencies strictly regulate the promotional claims that may be made about prescription products, such as gemcabene, if approved. In particular, a product may not be promoted for uses that are not approved by the FDA or such other regulatory agencies as reflected in the product's approved labeling. If Gemphire receives marketing approval for gemcabene or any future product candidate for a certain indication, physicians may nevertheless prescribe gemcabene or such future product candidate to their patients in a manner that is inconsistent with the approved label. If Gemphire is found to have promoted such off-label uses, it may become subject to significant liability. The federal government has levied large civil and criminal fines against companies for alleged improper promotion and has enjoined several companies from engaging in off-label promotion. The FDA has also requested that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed. If Gemphire cannot successfully manage the promotion of gemcabene or any future product candidate, if approved, it could become subject to significant liability, which would adversely affect its business and financial condition.

***Tax matters, including the changes in corporate tax rates, disagreements with taxing authorities and imposition of new taxes could impact Gemphire's results of operations and financial condition.***

Gemphire is subject to income and other taxes in the U.S. and its operations, plans and results are affected by tax and other initiatives. On December 22, 2017, comprehensive changes to the Code were signed into law, informally titled the Tax Cuts and Jobs Act (the "Tax Act"). The Tax Act included significant changes that could materially impact the taxation of corporations such as Gemphire, including among other things, changes to the corporate income tax rate, limitation of the tax deduction

for interest expense to business interest income plus 30% of adjusted taxable income (except for certain small businesses), limitation of the deduction for net operating losses ("NOLs") generated in tax years beginning after December 31, 2017 to 80% of current year taxable income and the general elimination of carrybacks of NOLs generated in taxable years ending after December 31, 2017, immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits (including changes to the orphan drug tax credit and changes to the deductibility of research and experimental expenditures that will be effective in the future). Notwithstanding the reduction in the corporate income tax rate, the overall impact of the Tax Act and any future tax reform is uncertain and Gemphire's business and financial condition could be adversely affected. The impact of the Tax Act and any future tax reform on holders of Gemphire common stock is likewise uncertain and could be adverse.

Gemphire is also subject to regular reviews, examinations, and audits by the IRS and other taxing authorities with respect to its taxes. Although it believes its tax estimates are reasonable, if a taxing authority disagrees with the positions it has taken, it could face additional tax liability, including interest and penalties. There can be no assurance that payment of such additional amounts upon final adjudication of any disputes will not have a material impact on its results of operations and financial position.

Gemphire also needs to comply with new, evolving or revised tax laws and regulations. The enactment of or increases in tariffs, or other changes in the application or interpretation of the Tax Act, or on specific products that it may ultimately sell or with which its products compete, may have an adverse effect on Gemphire's business or on its results of operations.

***Inadequate funding for the FDA, the SEC and other government agencies could hinder their ability to perform normal business functions on which the operation of its business may rely, which could negatively impact Gemphire's business.***

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, ability to hire and retain key personnel and accept the payment of user fees, and statutory, regulatory, and policy changes. Average review times at the FDA have fluctuated in recent years as a result. Disruptions at the FDA and other agencies may also slow the time necessary for new drugs to be reviewed and/or approved by necessary government agencies, which would adversely affect its business.

In addition, government funding of the SEC and other government agencies on which its operations may rely is subject to the political process, which is inherently fluid and unpredictable. For example, over the last several years, including beginning on December 22, 2018, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA and the SEC, have had to furlough critical FDA, SEC and other government employees and stop critical activities. If a prolonged government shutdown occurs, it could significantly impact the ability of the FDA to timely review and process Gemphire's regulatory submissions, which could have a material adverse effect on its business. Further, in Gemphire's operations as a public company, future government shutdowns could impact its ability to access the public markets and obtain necessary capital in order to properly capitalize and continue its operations.

***Federal legislation and actions by state and local governments may permit reimportation of drugs from foreign countries into the United States, including foreign countries where the drugs are sold at lower prices than in the United States, which could adversely affect its operating results.***

Gemphire may face competition for gemcabene, if approved, from cheaper lipid-lowering therapies sourced from foreign countries that have placed price controls on pharmaceutical products. The Medicare Modernization Act contains provisions that may change U.S. importation laws and expand

pharmacists' and wholesalers' ability to import cheaper versions of an approved drug and competing products from Canada, where there are government price controls. These changes to U.S. importation laws will not take effect unless and until the Secretary of Health and Human Services certifies that the changes will pose no additional risk to the public's health and safety and will result in a significant reduction in the cost of products to consumers. The Secretary of Health and Human Services has so far declined to approve a reimportation plan. Proponents of drug reimportation may attempt to pass legislation that would directly allow reimportation under certain circumstances. Legislation or regulations allowing the reimportation of drugs, if enacted, could decrease the price Gemphire receives for any product it may develop and adversely affect its future revenues and prospects for profitability.

**Risks Related to the Commercialization of Gemcabene or Any Future Product Candidate**

***Gemphire faces substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than Gemphire does.***

The development and commercialization of new drug products is highly competitive. Gemphire expects to face competition with respect to gemcabene, if approved, and will face competition with respect to any product candidates that Gemphire may seek to develop or commercialize in the future from major pharmaceutical companies, specialty pharmaceutical companies, biotechnology companies, universities and other research institutions and government agencies worldwide.

The lipid-lowering therapies market is highly competitive and dynamic and dominated by the sale of statin treatments including the cheaper generic versions of statins. Gemphire's success will depend, in part, on its ability to obtain a share of the market for its planned indications. Other pharmaceutical companies may develop lipid-lowering therapies for the same indications that compete with gemcabene, if approved, that do not infringe the claims of Gemphire's patents, pending patent applications or other proprietary rights which could adversely affect its business and results of operations. Lipid-lowering therapies currently on the market that would compete with gemcabene, if approved, include the following:

- statins, such as Crestor marketed by AstraZeneca, Livalo marketed by Kowa Pharmaceuticals America, Inc. (Kowa), Zocor marketed by Merck & Co., Inc. (Merck), Lipitor marketed by Pfizer, and their generic versions;
- cholesterol absorption inhibitors, such as Zetia, marketed by Merck;
- apoB antisense Kynamro marketed by Genzyme Corporation, a Sanofi company, and MTTP inhibitor Juxtapid marketed by Aegerion Pharmaceuticals, Inc.;
- combination therapies, such as Vytorin and Liptruzet, both marketed by Merck;
- other lipid-lowering monotherapies, including: fibrates, such as TriCor and Trilipix, both marketed by AbbVie Inc. (AbbVie), and Lipofen marketed by Kowa; niacin, such as Niaspan marketed by AbbVie; bile acid sequestrants, such as Welchol, marketed by Daiichi Sankyo Inc.; combination therapies, such as Advicor and Simcor, both of which are marketed by AbbVie; Pemafibrate (PPARalpha agonist) being marketed by Kowa; and the generic versions of these drugs;
- prescription fish oils, such as Lovaza marketed by GlaxoSmithKline, Epanova marketed by AstraZeneca and Vascepa marketed by Amarin Corporation plc;
- PCSK9 inhibitors, such as Praluent, developed by Sanofi-Aventis U.S. LLC, and Regeneron Pharmaceuticals, Inc. and Repatha marketed by Amgen Inc;
- Anti-inflammatory agents such as canakinumab, developed by Novartis.

Several other pharmaceutical companies have other lipid-lowering therapies in development that may be approved for marketing in the United States or outside of the United States. Based on publicly available information, Gemphire believes the current therapies in development that would compete with gemcabene include:

- for HoFH, RGEN-1500 being developed by Regeneron Pharmaceuticals, Inc. MGL-3196 developed by Madrigal Pharmaceuticals (Madrigal) for HoFH, and ALN-PCSsc being developed by The Medicines Company and Alnylam Pharmaceuticals, Inc.;

- for HeFH and ASCVD, drugs include: oral cholesteryl ester transfer protein inhibitors, such as anacetrapib being developed by Merck and TA-8995 being developed by Amgen/Dezima; ATP citrate lyase inhibitor, ETC-1002 developed by current Esperion; PCSK9 inhibitors, such as ALN-PCSsc (inclisiran) being developed by The Medicines Company and Alnylam Pharmaceuticals, Inc.; apoA antisense agent AKCEA-APO(a)-LRx being developed by Akcea and Novartis; apabetalone (RVX-208) being developed by Resvelogix; and MGL-3196 developed by Madrigal (HeFH only);

- for SHTG, ISIS-APOCIII-LRX being developed by Ionis Pharmaceuticals, Inc. (formerly Isis Pharmaceuticals, Inc.); CaPre (long-chain omega-3 phospholipid) being developed by Acasti; pemafibrate being developed by KOWA.

This means that there is significant competition for investigational sites and patients to enroll in clinical studies. Additionally, since some drug candidates may be further along in development, approval of such drug candidates could lead to the FDA and other global health authorities to request and/or require changes to ongoing or future clinical trial designs that could impact timelines and cost.

The biomarkers and pathogenesis of NASH are less understood than the dyslipidemia market and for that reason there are many mechanisms of action under investigation to better understand how to effectively treat the disease. Currently accepted diagnosis of NASH is confirmed through a liver biopsy which is invasive, time consuming and costly. Future growth and evolution of the NASH market may rely on development of less invasive technologies to increase diagnoses rates to broaden the drug treated patient population. Several companies have late stage assets (Phase 3 or outcomes studies) well under way with projected market approval dates in NASH as soon as 2019/2020. For NASH, the market is currently evolving with no approved therapies for the indication across the globe. Current thought leader opinions are pointing to a multiple mechanistic approach to effectively treat NASH.

Several pharmaceutical companies have NASH therapies in development that may be approved for marketing in the United States or outside of the United States. Based on publicly available information, Gemphire believes the current therapies in development that would compete with gemcabene in NASH include but are not limited to:

- OCALIVA (Obeticholic Acid) (FXR Agonist) being developed by Intercept Pharmaceuticals, Inc.;

- Elafibranor (PPAR Agonist) being developed by Genfit SA;

- Selonsertib (formerly GS-4997) (ASK1 Inhibitor) being developed by Gilead Sciences, Inc.;

- GS-0976 (ACC Inhibitor) being developed by Gilead Sciences, Inc.;

- GS-9674 (FXR Agonist) being developed by Gilead;

- Cenicriviroc (CVC) (CCR2/CCR5 Inhibitor) being developed by Tobira Therapeutics, Inc. (a wholly-owned subsidiary of Allergan plc);

- Emricasan (Caspase Inhibitor) being developed by Conatus Pharmaceuticals Inc.

- Aramchol (Synthetic Fatty Acid/Bile Acid Conjugate) being developed by Galmed;

- MN-001 (5-lipoxygenase Inhibitor) being developed by MediciNova;
- VK2809 (THR-Beta Agonist) being developed by Viking;
- BMS-986036 (GFG21) being developed by BMS;
- Lanifibranor (PPAR Pan Agonist) being developed by Inventiva;
- GR-MD-02 (Galectin-3 Inhibitor) being developed by Galectin Therapeutics; and
- MGL-3196 (THR Agonist) being developed by Madrigal.

Gemphire's competitors may develop products that are more effective, safer, more convenient or less costly than any that Gemphire is developing or that would render Gemphire's product candidates obsolete or non-competitive. Gemphire's competitors may also render its technologies obsolete by advances in existing technological approaches or the development of new or different approaches, potentially eliminating the advantages in its drug discovery process. Gemphire's competitors may also obtain marketing approval from the FDA or other regulatory authorities for their products more rapidly than it may obtain approval for Gemphire's, which could result in its competitors establishing a strong market position before it is able to enter the market.

Many of Gemphire's competitors have significantly greater name recognition, financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved products than Gemphire does. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of Gemphire's competitors. Smaller and other early stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These third parties compete with Gemphire in recruiting and retaining qualified scientific and management personnel, establishing clinical trial sites and patient registration for clinical trials and entering into strategic transactions, as well as in acquiring technologies complementary to, or necessary for, Gemphire's programs.

***Gemphire lacks experience commercializing products, which may have an adverse effect on Gemphire's business.***

If gemcabene or any product candidate Gemphire may pursue in the future receives marketing approval, it will need to transition from a company with a development focus to a company capable of supporting commercial activities, and Gemphire may not be successful in making that transition. Gemphire has never filed an NDA, and has not yet demonstrated an ability to obtain marketing approval for, or to commercialize, any product candidate. As a result, Gemphire's clinical development and regulatory approval process, and its ability to successfully commercialize any approved products, may involve more inherent risk, take longer, and cost more than it would if it was a company with experience obtaining marketing approval for and commercializing a product candidate.

***If Gemphire is unable to establish sales and marketing capabilities or enter into agreements with third parties to sell and market gemcabene, if approved, or any other product candidate it may pursue, it may not be successful in commercializing such product candidate if and when approved.***

Gemphire does not have a global sales or marketing infrastructure and has no capabilities in place at the present time for the sale, marketing or distribution of pharmaceutical products. To achieve commercial success for any approved product for which it retains sales and marketing responsibilities, Gemphire must either develop a sales and marketing organization or outsource part or all of these functions to other third parties.

There are risks involved with both establishing Gemphire's own sales and marketing capabilities and entering into arrangements with third parties to perform these services. For example, recruiting

and training a sales force is expensive and time consuming and could delay any product launch. If the commercial launch of a product candidate for which Gemphire recruits a sales force and establishes marketing capabilities is delayed or does not occur for any reason, Gemphire would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly, and its investment would be lost if it cannot retain or reposition its sales and marketing personnel.

Factors that may inhibit Gemphire's efforts to commercialize gemcabene or any future product candidate on its own include:

- Gemphire's inability to recruit and retain adequate numbers of effective sales and marketing personnel;
- the inability of sales personnel to obtain access to physicians or persuade adequate numbers of physicians to prescribe its product candidate;
- the lack of complementary products to be offered by sales personnel, which may put Gemphire at a competitive disadvantage relative to companies with more extensive product lines;
- unforeseen costs and expenses associated with creating an independent sales and marketing organization; and
- inability to obtain sufficient coverage and reimbursement from third-party payors and governmental agencies.

If Gemphire enters into arrangements with third parties to perform sales, marketing and distribution services, its product revenues or the profitability of these product revenues to it are likely to be lower than if it was to market and sell a product that it develops itself. In addition, it may not be successful in entering into arrangements with third parties to sell and market any product candidate or may be unable to do so on terms that are favorable to it. It likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market a drug effectively. If Gemphire does not establish sales and marketing capabilities successfully, either on its own or in collaboration with third parties, it will not be successful in commercializing gemcabene or any future product candidate.

***Even if gemcabene or any future product candidate receives marketing approval, it may fail to achieve the degree of market acceptance by physicians, patients, healthcare payors and others in the medical community necessary for commercial success.***

Even if gemcabene or any future product candidate receives marketing approval, it may nonetheless fail to gain sufficient market acceptance by physicians, patients, healthcare payors and others in the medical community. If such product candidate does not achieve an adequate level of acceptance, it may not generate significant product revenues and it may not become profitable. The degree of market acceptance of a product candidate, if approved for commercial sale, will depend on a number of factors, including:

- efficacy and potential advantages compared to alternative treatments;
- the ability to offer its product for sale at competitive prices;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- any restrictions on the use of its product together with other medications;
- interactions of its product with other medicines patients are taking;
- inability of certain types of patients to take its product;

- demonstrated ability to treat patients and, if required by any applicable regulatory authority in connection with the approval for target indications, to provide patients with incremental cardiovascular disease benefits, as compared with other available therapies;
- the relative convenience and ease of administration of gemcabene, including as compared with other treatments available for approved indications;
- the prevalence and severity of any adverse side effects;
- limitations or warnings contained in the labeling approved by the FDA;
- availability of alternative treatments already approved or expected to be commercially launched in the near future;
- the effectiveness of its sales and marketing strategies;
- its ability to increase awareness through marketing efforts;
- guidelines and recommendations of organizations involved in research, treatment and prevention of various diseases that may advocate for alternative therapies;
- its ability to obtain sufficient third-party coverage and adequate reimbursement;
- the willingness of patients to pay out-of-pocket in the absence of third-party coverage; and
- physicians or patients may be reluctant to switch from existing therapies even if potentially more effective, safe or convenient.

***If the FDA or a comparable foreign regulatory authority approves generic versions of gemcabene or any future product candidates that receive marketing approval, or such authorities do not grant its product candidates appropriate periods of data exclusivity before approving generic versions of its products, the sales of its products could be adversely affected.***

Once an NDA is approved, the product covered thereby becomes a "reference listed drug" in the FDA's publication, "Approved Drug Products with Therapeutic Equivalence Evaluations." Manufacturers may seek approval of generic versions of reference listed drugs through submission of abbreviated new drug applications (ANDAs) in the United States. In support of an ANDA, a generic manufacturer need not conduct clinical studies. Rather, the applicant generally must show that its product has the same active ingredient(s), dosage form, strength, route of administration and conditions of use or labeling as the reference listed drug and that the generic version is bioequivalent to the reference listed drug, meaning it is absorbed in the body at the same rate and to the same extent. Generic products may be significantly less costly to bring to market than the reference listed drug and companies that produce generic products are generally able to offer them at lower prices. Thus, following the introduction of a generic drug, a significant percentage of the sales of any branded product or reference listed drug may be typically lost to the generic product.

The FDA may not approve an ANDA for a generic product until any applicable period of non-patent exclusivity for the reference listed drug has expired. The FDC Act provides a period of five years of non-patent exclusivity for a new drug containing a new chemical entity (NCE). Specifically, in cases where such exclusivity has been granted, an ANDA may not be filed with the FDA until the expiration of five years unless the submission is accompanied by a Paragraph IV certification that a patent covering the reference listed drug is either invalid or will not be infringed by the generic product, in which case the applicant may submit its application four years following approval of the reference listed drug. It is unclear whether the FDA will treat the active ingredients in Gemphire's product candidates as NCEs and, therefore, afford them five years of NCE data exclusivity if they are approved. If any product Gemphire develops does not receive five years of NCE exclusivity, it may nonetheless be eligible for three years of exclusivity, which means that the FDA may approve generic

versions of such product three years after its date of approval. Manufacturers may seek to launch these generic products following the expiration of the applicable marketing exclusivity period, even if Gemphire still has patent protection for its product.

Competition that gemcabene or any future product candidates may face from generic versions of Gemphire's products could materially and adversely impact its future revenue, profitability and cash flows and substantially limit its ability to obtain a return on the investments it has made in any such product candidate.

***Even if Gemphire is able to commercialize a future product candidate, the profitability of such product candidate will likely depend in significant part on third-party reimbursement practices, which, if unfavorable, would harm its business.***

Gemphire's ability to commercialize a drug successfully will depend in part on the extent to which coverage and adequate reimbursement will be available from government health administration authorities, private health insurers and other organizations. Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. Government authorities and third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. Gemphire cannot be sure that coverage will be available for any product candidate that it commercializes and, if coverage is available, whether the level of reimbursement will be adequate. Assuming Gemphire obtains coverage for gemcabene, if approved, by a third-party payor, the resulting reimbursement payment rates may not be adequate or may require co-payments that patients find unacceptably high. Patients who are prescribed medications for the treatment of their conditions, and their prescribing physicians, generally rely on third-party payors to reimburse all or part of the costs associated with their prescription drugs. Patients are unlikely to use a product candidate, if approved, unless coverage is provided and reimbursement is adequate to cover all or a significant portion of the cost of its products. Therefore, coverage and adequate reimbursement is critical to new product acceptance. If reimbursement is not available or is available only to limited levels, Gemphire may not be able to successfully commercialize any product candidate for which it obtains marketing approval.

There may be significant delays in obtaining reimbursement for newly approved drugs, and coverage may be more limited than the purposes for which a product candidate is approved by the FDA or similar regulatory authorities outside the United States. Moreover, eligibility for reimbursement does not imply that any product will be paid for in all cases or at a rate that covers its costs, including research, development, manufacture, sale and distribution. Interim reimbursement levels for a new product, if applicable, may also not be sufficient to cover its costs and may not be made permanent. Reimbursement rates may vary according to the use of the product and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost medicines and may be incorporated into existing payments for other services. Net prices for products may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of medicines from countries where they may be sold at lower prices than in the United States. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. However, no uniform policy requirement for coverage and reimbursement for drug products exists among third-party payors in the United States. Therefore, coverage and reimbursement for drug products can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require Gemphire to provide scientific and clinical support for the use of its products to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance.

Gemphire's inability to promptly obtain coverage and profitable payment rates from both government-funded and private payors for any approved products that it develops could have an adverse effect on its operating results, its ability to raise capital needed to commercialize products and its overall financial condition.

***Product liability lawsuits against Gemphire could cause it to incur substantial liabilities and could limit commercialization of any product candidate that it may develop.***

Gemphire faces an inherent risk of product liability exposure related to the testing of its product candidate in human clinical trials and will face an even greater risk if it commercially sells any products that it may develop. Product liability claims might be brought against Gemphire by patients, healthcare providers or others selling or otherwise coming into contact with gemcabene or any future product candidate during product testing, manufacturing, marketing or sale. For example, Gemphire may be sued on allegations that a product candidate caused injury or that the product is otherwise unsuitable. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, including as a result of interactions with alcohol or other drugs, negligence, strict liability, and a breach of warranties. Claims could also be asserted under state consumer protection acts. If Gemphire cannot successfully defend itself against claims that its product candidate caused injuries, it could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any product candidate that it is developing;
- injury to its reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- increased FDA warnings on product labels;
- significant costs to defend the related litigation;
- substantial monetary awards to trial participants or patients;
- distraction of management's attention from its primary business;
- loss of revenue; and
- the inability to commercialize any product candidate that it may develop.

Any product liability or clinical trial insurance coverage that Gemphire does obtain may not be adequate to cover all liabilities that it may incur. Gemphire may need to increase its insurance coverage as it expands clinical trials and if it successfully commercializes gemcabene or any other product candidate it may pursue in the future. Insurance coverage is increasingly expensive, and Gemphire may not be able to obtain product liability insurance on commercially reasonable terms or in an amount adequate to satisfy any liability that may arise.

***If Gemphire or its third-party manufacturers fail to comply with environmental, health and safety laws and regulations, it could become subject to fines or penalties or incur costs that could have an adverse effect on the success of its business.***

Gemphire's research and development activities involve the controlled use of potentially hazardous substances, including chemical and biological materials, by itself and its third-party manufacturers. Gemphire's manufacturers are subject to federal, state and local laws and regulations in the United States and abroad governing laboratory procedures and the use, manufacture, storage, handling and disposal of medical and hazardous materials. Although Gemphire believes that its manufacturers' procedures for using, handling, storing and disposing of these materials comply with legally prescribed standards, Gemphire cannot completely eliminate the risk of contamination or injury resulting from

medical or hazardous materials. As a result of any such contamination or injury, Gemphire may incur liability or local, city, state or federal authorities may curtail the use of these materials and interrupt its business operations. In the event of an accident, Gemphire could be held liable for damages or penalized with fines, and the liability could exceed its resources. Gemphire does not have any insurance for liabilities arising from medical or hazardous materials. Although Gemphire maintains workers' compensation insurance to cover it for costs and expenses it may incur due to injuries to its employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. Compliance with applicable environmental, health and safety laws and regulations is expensive, and current or future environmental regulations may impair its research, development and production efforts, which could harm its business, prospects, financial condition or results of operations.

**Risks Related to its Dependence on Third Parties**

***Gemphire will be unable to directly control all aspects of its clinical trials due to its reliance on clinical research organizations (CROs) and other third parties that assist it in conducting clinical trials.***

Gemphire will rely on CROs to conduct part or all of its preclinical studies and clinical trials for any product candidate, including its Phase 2 and Phase 3 trials for gemcabene. As a result, Gemphire will have limited control over the conduct, timing and completion of these clinical trials and the management of data developed through the clinical trials. Communicating with outside parties can also be challenging, potentially leading to mistakes as well as difficulties in coordinating activities. Outside parties may:

- have staffing difficulties;
- fail to comply with contractual obligations;
- experience regulatory compliance issues;
- change its priorities or become financially distressed; or
- form relationships with other entities, some of which may be Gemphire's competitors.

These factors may adversely affect the willingness or ability of third parties to conduct Gemphire's clinical trials and may subject it to unexpected cost increases that are beyond its control.

Moreover, the FDA and other global health authorities require Gemphire to comply with standards, commonly referred to as good clinical practices, for conducting, recording, and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of clinical trial participants are protected. Gemphire's reliance on third parties that it does not control does not relieve it of these responsibilities and requirements.

Problems with the timeliness or quality of the work of any CRO may lead Gemphire to seek to terminate its relationship with any such CRO and use an alternative service provider. Making this change may be costly and may delay Gemphire's clinical trials, and contractual restrictions may make such a change difficult or impossible to effect. If Gemphire must replace any CRO that is conducting its clinical trials, its clinical trials may have to be suspended until it finds another CRO that offers comparable services. The time that it takes Gemphire to find alternative organizations may cause a delay in the commercialization of gemcabene or may cause it to incur significant expenses to replicate data that may be lost. Although Gemphire does not believe that any CRO on which it may rely will offer services that are not available elsewhere, it may be difficult to find a replacement organization that can conduct its clinical trials in an acceptable manner and at an acceptable cost. Any delay in or inability of Gemphire to complete its clinical trials could significantly compromise its ability to secure regulatory approval of gemcabene and preclude its ability to commercialize gemcabene, thereby limiting or preventing its ability to generate revenue from its sales.

***Gemphire relies completely on third parties to supply and manufacture its preclinical and clinical drug supplies for gemcabene, and Gemphire intends to rely on third parties to produce commercial supplies of gemcabene.***

Gemphire does not currently have, nor does it plan to acquire, the infrastructure or capability to internally manufacture its clinical drug supply of gemcabene, or any future product candidates, for use in the conduct of its preclinical studies and clinical trials, and Gemphire lacks the internal resources and the capability to manufacture any product candidates on a clinical or commercial scale. The process of manufacturing drug products is complex, highly regulated and subject to several risks. For example, the facilities used by Gemphire's contract manufacturers to manufacture the active pharmaceutical ingredient (or drug substance) and final drug product for gemcabene, or any future product candidates, must be inspected by the FDA and other comparable foreign regulatory agencies in connection with its submission of an NDA or relevant foreign regulatory submission to the applicable regulatory agency. In addition, the manufacturing of drug substance or product is susceptible to product loss due to contamination, equipment failure, improper installation or operation of equipment, or vendor or operator error. Moreover, the manufacturing facilities in which gemcabene or any future product candidates are made could be adversely affected by equipment failures, labor shortages, natural disasters, power failures or other factors.

Gemphire does not control the manufacturing process of, and is completely dependent on, its contract manufacturers to comply with current good manufacturing practices (cGMP) for manufacture of both active drug substances and finished drug products. If Gemphire's contract manufacturers cannot successfully manufacture material that conforms to its specifications and the strict regulatory requirements of the FDA or applicable foreign regulatory agencies, Gemphire will not be able to secure and/or maintain regulatory approval for its products. In addition, Gemphire has no direct control over its contract manufacturers' ability to maintain adequate quality control, quality assurance and qualified personnel. Failure to satisfy the regulatory requirements for the production of those materials and products may affect the regulatory clearance of Gemphire's contract manufacturers' facilities generally. If the FDA or a comparable foreign regulatory agency does not approve these facilities for the manufacture of gemcabene or any future product candidates, or withdraws its approval in the future, Gemphire may need to find alternative manufacturing facilities, which would adversely impact its ability to develop, obtain regulatory approval for or market gemcabene or such future product candidates. Furthermore, all of its contract manufacturers are engaged with other companies to supply and/or manufacture materials or products for such companies, which exposes Gemphire's manufacturers to regulatory and sourcing risks for the production of such materials and products. To the extent practicable, Gemphire attempts to identify more than one supplier, but some raw materials are available only from a single source or only one supplier has been identified, even in instances where multiple sources exist.

Gemphire has relied upon third-party manufacturers for the manufacture of its product candidate for preclinical and clinical testing purposes and intend to continue to do so in the future, including for commercial purposes. If Gemphire's third party manufacturers are unable to supply drug substance and/or drug product on a commercial basis, Gemphire may not be able to successfully produce and market gemcabene, if approved, or could be delayed in doing so. For instance, Gemphire relies on one supplier to provide the drug substance for gemcabene. The manufacturer of the drug substance for gemcabene will need to manufacture batches of the drug substance that will serve as the validation batches that will be reviewed by the FDA in connection with its review of the NDA for gemcabene and as the supply of gemcabene, if approved and successfully launched commercially. If there is any delay or problem with the manufacture of these batches of drug substance or if there is a delay in producing finished product from these batches, the approval of gemcabene may be delayed or any potential launch of gemcabene may be adversely affected. Gemphire will rely on comparison of product specifications (identity, strength, quality, potency) to demonstrate equivalence of the current drug

substance and/or drug product to the drug substance and/or drug product used in previously completed preclinical and clinical testing. If Gemphire is unable to demonstrate such equivalence, it may be required to conduct additional preclinical and/or clinical testing of its product candidate.

These and other problems with any manufacturer may lead Gemphire to seek to terminate its relationship with any such manufacturer and use an alternative manufacturer. Making this change may be costly, time consuming and difficult to effectuate, and may delay Gemphire's research and development activities. If Gemphire must replace any manufacturer, its research and development activities may have to be suspended until it finds another manufacturer that offers comparable services. The time that it takes it to find alternative organizations may cause a delay in the development and commercialization of gemcabene or any future product candidate.

***Gemphire may form or seek strategic alliances or enter into additional licensing arrangements in the future, and Gemphire may not realize the benefits of such alliances or licensing arrangements.***

Gemphire may form or seek strategic alliances, create joint ventures or collaborations or enter into additional licensing arrangements with third parties that it believes will complement or augment its development and commercialization efforts with respect to gemcabene and any future product candidates that it may develop. For example, Gemphire entered into the Beijing SL License Agreement, which granted Beijing SL an exclusive royalty-bearing license to research, develop, manufacture and commercialize pharmaceutical products comprising, as an active ingredient, gemcabene, in Greater China. This relationship and any other strategic alliance or collaboration may require Gemphire to incur non-recurring and other charges, increase its near and long-term expenditures, issue securities that dilute its existing stockholders or disrupt its management and business. Gemphire's likely collaborators include large and mid-size pharmaceutical companies, regional and national pharmaceutical companies and biotechnology companies. If Gemphire enters into any such arrangements with any third parties, it will likely have limited control over the amount and timing of resources that its collaborators dedicate to the development or commercialization of gemcabene or any future product candidate. Gemphire's ability to generate revenues from these arrangements will depend on its collaborators' abilities to successfully perform the functions assigned to them in these arrangements. Gemphire cannot be certain that, following a strategic transaction or license, it will achieve the revenue or specific net income that justifies such transaction.

Collaborations involving gemcabene or any future product candidate pose the following risks to it:

- collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations;
- collaborators may not perform their obligations as expected;
- collaborators may not pursue development and commercialization or may elect not to continue or renew development or commercialization programs based on clinical trial results, changes in the collaborator's strategic focus or available funding or external factors such as an acquisition that diverts resources or creates competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with Gemphire's product candidate if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive;

- a collaborator with marketing and distribution rights to one or more product candidates may not commit sufficient resources to the marketing and distribution of any such product candidate;
- collaborators may not properly maintain or defend its intellectual property rights or may use its proprietary information in such a way as to invite litigation that could jeopardize or invalidate Gemphire's proprietary information or expose Gemphire to potential litigation;
- collaborators may infringe the intellectual property rights of third parties, which may expose Gemphire to litigation and potential liability;
- disputes may arise between the collaborators and Gemphire that result in the delay or termination of the research, development or commercialization of Gemphire's product candidate or that result in costly litigation or arbitration that diverts management attention and resources;
- Gemphire may lose certain valuable rights under circumstances identified in its collaborations, including if it undergoes a change of control;
- collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates;
- collaborators may learn about Gemphire's discoveries and use this knowledge to compete with it in the future;
- the results of collaborators' preclinical or clinical studies could harm or impair other development programs;
- there may be conflicts between different collaborators that could negatively affect those collaborations and potentially others;
- the number and type of Gemphire's collaborations could adversely affect its attractiveness to future collaborators or acquirers;
- collaboration agreements may not lead to development or commercialization of Gemphire's product candidate in the most efficient manner or at all. If Gemphire's present or future collaborator were to be involved in a business combination, the continued pursuit and emphasis on its product development or commercialization program under such collaboration could be delayed, diminished or terminated; and
- collaborators may be unable to obtain the necessary marketing approvals.

If future collaboration partners fail to develop or effectively commercialize gemcabene or any future product candidate for any of these reasons, such product candidate may not be approved for sale and Gemphire's sales of such product candidate, if approved, may be limited, which would have an adverse effect on Gemphire's operating results and financial condition.

***If Gemphire is not able to establish new collaborations on commercially reasonable terms, it may have to alter its development and commercialization plans.***

Gemphire faces significant competition in attracting collaborators. Whether Gemphire reaches a definitive agreement for collaboration will depend, among other things, upon its assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors related to the associated product candidate. Those factors may include the design or results of clinical trials, the likelihood of approval by the FDA or similar regulatory authorities outside the United States, the potential market for the product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing products, the existence of uncertainty with respect to its ownership of technology, which can exist if there is a challenge to such ownership without regard to the merits of

the challenge and industry and market conditions generally. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with Gemphire.

Much of the potential revenue from future collaborations may consist of contingent payments, such as payments for achieving regulatory milestones or royalties payable on sales of Gemphire's product candidate, if approved. The milestone and royalty revenue that Gemphire may receive under these collaborations will depend upon its collaborators' ability to successfully develop, introduce, market and sell its new product candidate, if approved. In addition, collaborators may decide to enter into arrangements with third parties to commercialize products developed under collaborations related to Gemphire's product candidate, which could reduce the milestone and royalty revenue received, if any.

Gemphire may also be restricted under existing collaboration agreements from entering into future agreements on certain terms with potential collaborators. Collaborations are complex and time-consuming to negotiate and document. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators.

Gemphire may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If Gemphire is unable to do so, it may have to curtail the development of the product candidate for which it is seeking to collaborate, reduce or delay its development program or one or more of its other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase its expenditures and undertake development or commercialization activities at its own expense. If Gemphire elects to increase its expenditures to fund development or commercialization activities on its own, it may need to obtain additional capital, which may not be available to it on acceptable terms or at all. If Gemphire does not have sufficient funds, it may not be able to further develop its product candidate or bring it to market and generate product revenue.

**Risks Related to Gemphire's Intellectual Property**

***If Gemphire is unable to adequately protect its proprietary technology or maintain issued patents sufficient to protect gemcabene or any future product candidate, others could compete against it more directly, which would have an adverse impact on its business, results of operations, financial condition and prospects.***

Gemphire's commercial success will depend in part on its success obtaining and maintaining issued patents and other intellectual property rights in the United States and elsewhere and protecting its proprietary technology. If Gemphire does not adequately protect its intellectual property and proprietary technology, competitors may be able to use its technologies and erode or negate any competitive advantage it may have, which could harm its business and ability to achieve profitability. Gemphire licensed patents relating to its current product candidate, gemcabene, from Pfizer. Pursuant to the license agreement, Gemphire is responsible for filing, prosecuting and maintaining the patent rights in Pfizer's name at its own cost and expense. In connection with this obligation, Gemphire is granted the first right to control the enforcement of the license patents against any third-party infringement actions. Risks related to its Pfizer license are discussed elsewhere in this "Risk Factors" section under "Gemphire depends on intellectual property licensed from Pfizer for gemcabene, and the termination of this license would harm Gemphire's business." The termination of this license could result in the loss of significant rights, which would harm Gemphire's business.

As of September 30, 2019, Gemphire's patent estate, including patents it owns or licenses from third parties, on a worldwide basis, included 8 issued U.S. patents, 10 pending U.S. patent applications, 41 issued patents in foreign jurisdictions including Australia, Austria, Belgium, Bulgaria, Canada, Czechia, Demark, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Japan, Luxembourg, Mexico, Netherlands, Poland, Portugal, Romania, Sweden, Switzerland and Spain and 84 pending patent applications in foreign jurisdictions including Argentina, Australia, Brazil, Canada,

China, Europe, Hong Kong, Israel, India, Japan, Mexico, New Zealand, Philippines, Russia, Singapore, Thailand, Taiwan and South Africa. Gemphire's worldwide patents and pending applications all relate to its product candidate, gemcabene. Gemphire's patents that claimed the gemcabene composition of matter which were in-licensed from Pfizer, have all expired; however, Gemphire's clinical formulation comprises a specific calcium salt crystal form of gemcabene, which form is claimed in U.S. Patent Numbers 6,861,555 and 7,141,608. These patents, which was in-licensed from Pfizer, are expected to expire in 2021, absent any patent term extension. Gemphire's current patent estate includes fourteen patent families that have claims directed to methods of treatment using gemcabene. These patent families include, for example, U.S. Patent Number 8,557,835, licensed from Pfizer that has claims directed to pharmaceutical compositions comprised of combinations of gemcabene with statins and methods of using a combination of gemcabene on top of a statin in a patient that does not reach sufficient LDL-C lowering on a statin alone, for treating several conditions including hyperlipidemia. U.S. Patent Number 8,557,835 is expected to expire in 2021, absent any patent term extension. All related foreign patents are now expired. Additionally, U.S. Patent Number 8,846,761 is owned by Gemphire. U.S. Patent Number 8,846,761 is directed to methods of decreasing a subject's risk for developing pancreatitis by administering gemcabene and is expected to expire in 2032. Any foreign patent in this family that may issue, is expected to expire in 2031, absent any patent term extension. U.S. Patent No 10,028,926, is directed to methods of decreasing a patient's risk for developing coronary heart disease or preventing, delaying or reducing the severity of a secondary cardiovascular event by administering gemcabene with a statin. Related patent applications are pending in foreign jurisdictions including Canada, China, Europe and Japan. Any patent that may issue in this family, absent any patent term adjustment or extension, is expected to expire in 2033. U.S. Patent No. 9,849,104 is directed to methods of stabilizing NAFLD or NAS of $^{3}$ 2 or reducing hepatic fibrosis. U.S. Patent No. 9,849,104 is expected to expire in 2036 and the two pending U.S. patent applications, without any extensions will also expire in 2036. Any foreign patent in this family that may issue, is expected to expire in 2036, absent any patent term extension. U.S. Patent No. 10, 227,285 which is owned by Gemphire, is directed to methods of large-scale manufacturing for making dicarboxyalkyl ethers. Foreign counterpart patent applications are pending in Australia, Brazil, Canada, China, Europe, Hong Kong, India, Israel, Japan, Mexico, New Zealand, Korea, Russia, Singapore and South Africa. Any patent issuing from this patent family is expected to expire in 2035.

In 2017 Gemphire also filed two PCT applications, one for methods of treating mixed dyslipidemia using gemcabene in combination with statins and treatment of NASH using gemcabene as a monotherapy (PCT/US2016/060837), and the other relating to fixed dose combinations and modified release formulations of gemcabene and statins (PCT/US2016/060849). Two U.S. Patent Applications were filed as continuations of PCT/US2016/060837, U.S. Patent Application Number 15/416,911, now U.S. 9,849,104, is directed to methods of treating NASH by administering gemcabene as a monotherapy, U.S. Patent Application Number 15/424,620, is directed methods for treating Mixed Dyslipidemia by administering gemcabene and a statin, and will issue as U.S. Patent No. 10,449,154 on October 22, 2019 and one divisional U.S. Patent Application Number 15/814,557 directed to other aspects of NASH. With the PCT application, 18 foreign non-provisional applications were filed. Any patent that may issue from these families, absent any patent term adjustment or extension, is expected to expire in 2036.

The patent prosecution process is expensive and time-consuming, and Gemphire and its current or future licensors, licensees or collaboration partners may not be able to prepare, file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that Gemphire or its licensors will fail to identify patentable aspects of inventions made in the course of development and commercialization activities before it is too late to obtain patent protection on them. Gemphire and its licensors' patent applications cannot be enforced against third parties practicing the technology claimed in such applications unless and until a patent issues from such applications, and then only to the extent the issued claims cover the technology.

Gemphire cannot assure you that any of its patents have, or that any of its pending patent applications will mature into issued patents that will include, claims with a scope sufficient to protect gemcabene or any future product candidate. Others have developed technologies that may be related or competitive to its approach, and may have filed or may file patent applications and may have received or may receive patents that overlap or conflict with Gemphire's patent applications, either by claiming the same methods or formulations or by claiming subject matter that could dominate Gemphire's patent position. The patent positions of biotechnology and pharmaceutical companies, including Gemphire's patent position, involve complex legal and factual questions, and, therefore, the issuance, scope, validity and enforceability of any patent claims that Gemphire may obtain cannot be predicted with certainty. Patents, if issued, may be challenged, deemed unenforceable, invalidated, or circumvented. U.S. patents and patent applications may also be subject to interference proceedings, ex parte reexamination, or inter partes review proceedings, supplemental examination and challenges in district court. Patents may be subjected to opposition, post-grant review, or comparable proceedings lodged in various national and regional patent offices. These proceedings could result in either loss of the patent or denial of the patent application or loss or reduction in the scope of one or more of the claims of the patent or patent application. In addition, such interference, re-examination, opposition, post-grant review, inter partes review, supplemental examination or revocation proceedings may be costly. Thus, any patents that Gemphire may own or exclusively license may not provide any protection against competitors. Furthermore, an adverse decision in an interference proceeding can result in a third-party receiving the patent right sought by Gemphire, which in turn could affect Gemphire's ability to develop, market or otherwise commercialize gemcabene.

Furthermore, the issuance of a patent, while presumed valid, is not conclusive as to its validity or its enforceability and it may not provide Gemphire with adequate proprietary protection or competitive advantages against competitors with similar products. Competitors may also be able to design around Gemphire's patents. Other parties may develop and obtain patent protection for more effective technologies, designs or methods. Gemphire may not be able to prevent the unauthorized disclosure or use of any technical knowledge or trade secrets by consultants, vendors, former employees and current employees. The laws of some foreign countries do not protect Gemphire's proprietary rights to the same extent as the laws of the United States, and Gemphire may encounter significant problems in protecting its proprietary rights in these countries. If these developments were to occur, they could have a material adverse effect on Gemphire's sales.

Gemphire's ability to enforce its patent rights depends on its ability to detect infringement. It is difficult to detect infringers who do not advertise the components that are used in their products. Moreover, it may be difficult or impossible to obtain evidence of infringement in a competitor's or potential competitor's product. Any litigation to enforce or defend Gemphire's patent rights, if any, even if Gemphire were to prevail, could be costly and time-consuming and would divert the attention of Gemphire's management and key personnel from its business operations. Gemphire may not prevail in any lawsuits that it initiates and the damages or other remedies awarded if Gemphire were to prevail may not be commercially meaningful.

In addition, proceedings to enforce or defend Gemphire's patents could put its patents at risk of being invalidated, held unenforceable, or interpreted narrowly. Such proceedings could also provoke third parties to assert claims against Gemphire, including that some or all of the claims in one or more of its patents are invalid or otherwise unenforceable. If, in any proceeding, a court invalidated or found unenforceable Gemphire's patents covering gemcabene or any future product candidate, its financial position and results of operations would be adversely impacted. In addition, if a court found that valid, enforceable patents held by third parties covered gemcabene or any future product candidate, Gemphire's financial position and results of operations would also be adversely impacted.

The degree of future protection for Gemphire's proprietary rights is uncertain, and Gemphire cannot ensure that:

- any of its patents, or any of its pending patent applications, if issued, will include claims having a scope sufficient to protect gemcabene;
- any of its pending patent applications will result in issued patents;
- it will be able to successfully commercialize gemcabene or any future product candidate, if approved, before its relevant patents expire;
- it was the first to make the inventions covered by each of its patents and pending patent applications;
- it was the first to file patent applications for these inventions;
- others will not develop similar or alternative technologies that do not infringe its patents;
- any of its patents will be valid and enforceable;
- any patents issued to it will provide a basis for an exclusive market for its commercially viable products, will provide it with any competitive advantages or will not be challenged by third parties;
- it will develop additional proprietary technologies or product candidates that are separately patentable; or
- that its commercial activities or products will not infringe upon the patents of others.

Patents have a limited lifespan. The natural expiration of a patent is generally 20 years after its effective filing date. Various extensions may be available; however, the life of a patent, and the protection it affords, is limited. Given the extensive period of time between patent filing and regulatory approval for a product candidate, the time during which Gemphire can market a product candidate under patent protection is limited, and Gemphire's patent may expire before it obtains such approval. Without patent protection for gemcabene or any future product candidates, Gemphire may be open to competition from generic versions of its product candidates, which may affect the profitability of Gemphire's product candidates.

***If Gemphire does not obtain protection under the Hatch-Waxman Act and similar foreign legislation by extending the patent terms and obtaining data exclusivity for its product candidate, its business may be materially harmed.***

Depending upon the timing, duration of regulatory review, and date of FDA marketing approval of gemcabene or any future product candidate, if any, one of Gemphire's U.S. patents may be eligible for patent term restoration under the Drug Price Competition and Patent Term Restoration Act of 1984, referred to as the Hatch-Waxman Act. The Hatch-Waxman Act provides for a patent restoration term of up to five years as compensation for the time the product is under FDA regulatory review (patent term extension). The duration of patent term extension is calculated based on the time spent in the regulatory review process. Gemphire's basic U.S. composition of matter patent for gemcabene has expired. Gemphire plans to seek patent term extension for one of its patents related to gemcabene. However, Gemphire may not be granted an extension because of, for example, failing to apply within the applicable deadline, expiration of relevant patents prior to obtaining approval, or otherwise failing to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than Gemphire requests. If Gemphire is unable to obtain patent term extension or the term of any such extension is less than Gemphire requests, Gemphire's revenue could be reduced, possibly materially.

In addition, Gemphire believes that gemcabene is a NCE in the United States and may be eligible for data exclusivity under the Hatch-Waxman Act. A single-ingredient drug can be classified as a NCE if the FDA has not previously approved any other new drug containing the same active ingredient. Under sections 505(c)(3)(E)(ii) and 505(j)(5)(F)(ii) of the FDC Act, as amended, a NCE that is granted marketing approval may, even in the absence of patent protections, be eligible for five years of data exclusivity in the United States following marketing approval. During the data exclusivity period, if granted, the FDA is precluded from approving 505(b)(2) applications or abbreviated new drug applications submitted by another company that references the FDA's findings of safety and efficacy for the approved NDA. In the European Union, NCEs qualify for eight years of data exclusivity upon marketing authorization and an additional two years of market exclusivity. This data exclusivity, if granted, prevents regulatory authorities in the European Union from reviewing a generic application for eight years, after which generic marketing authorization can be approved but the generic drug may not be marketed during the two-year marketing exclusivity period. However, gemcabene may not be considered to be a NCE for these purposes or be entitled to the period of data exclusivity. If Gemphire is not able to gain or exploit the period of data exclusivity, it may face significant competitive threats to its commercialization of gemcabene from other manufacturers, including the manufacturers of generic alternatives. Further, even if Gemphire's compound is considered to be a NCE and Gemphire is able to gain the prescribed period of data exclusivity, another company nevertheless could gain marketing approval for the same compound if they independently generate preclinical and clinical data and get market approval through the NDA process without the benefit of Gemphire data.

***If Gemphire fails to maintain orphan drug exclusivity for gemcabene for HoFH, it will have to rely on data and marketing exclusivity for HoFH that is not based on an orphan drug designation, if any, and on its intellectual property rights.***

In the United States Gemphire has obtained orphan drug designation for gemcabene for the treatment of HoFH. Gemphire may submit an application to the FDA for other orphan drug designations for gemcabene such as for the treatment of TG greater than approximately 750 mg/dL (F) or Familial Partial Lipodystrophy under the Orphan Drug Act, the FDA may designate a product as an orphan drug if it is a drug intended to treat a rare disease or condition, defined, in part, as a patient population of fewer than 200,000 in the United States.

In the United States, the company that first obtains FDA approval for a designated orphan drug for the specified rare disease or condition receives orphan drug marketing exclusivity for that drug for a period of seven years. This orphan drug exclusivity prevents the FDA from approving another application, including a full NDA, to market the same drug for the same orphan indication, except in very limited circumstances. For purposes of small molecule drugs, the FDA defines "same drug" as a drug that contains the same active pharmaceutical ingredient (API) and is intended for the same use as the drug in question. A designated orphan drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the indication for which it received orphan designation. In addition, orphan drug exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition.

The EMA grants orphan drug designation to promote the development of products that may offer therapeutic benefits for life-threatening or chronically debilitating conditions affecting not more than five in 10,000 people in the European Union. Orphan drug designation from the EMA provides ten years of marketing exclusivity following drug approval, subject to reduction to six years if the designation criteria are no longer met.

Even if Gemphire is able to obtain and maintain orphan drug exclusivity for gemcabene for HoFH, the designation may not effectively protect it from competition for HoFH because different drugs can be approved for the same condition. Moreover, even with an orphan drug designation, the FDA can

subsequently approve a different formulation of the same API for the same condition if the FDA concludes that the later formulation of the API is safer, more effective or makes a major contribution to patient care.

***Changes in U.S. patent law could diminish the value of patents in general, thereby impairing Gemphire's ability to protect gemcabene and any product candidate it may pursue in the future.***

In 2011, the United States enacted wide-ranging patent reform legislation with the America Invents Act (AIA).

An important change introduced by the AIA is that, as of March 16, 2013, the United States transitioned to a "first-to-file" system for deciding which party should be granted a patent when two or more patent applications are filed by different parties claiming the same invention. A third party that files a patent application in the U.S. Patent and Trademark Office (USPTO) after that date but before Gemphire could therefore be awarded a patent covering a Gemphire invention even if Gemphire had made the invention before it was made by the third party. This will require Gemphire to be cognizant going forward of the time from invention to filing of a patent application, but circumstances could prevent Gemphire from promptly filing patent applications on its inventions.

Among some of the other changes introduced by the AIA are changes that limit where a patentee may file a patent infringement suit and providing opportunities for third parties to challenge any issued patent in the USPTO. This applies to all of Gemphire's U.S. patents, even those issued before March 16, 2013. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in U.S. federal courts necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. Accordingly, a third party may attempt to use the USPTO procedures to invalidate Gemphire's patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action. The AIA and its implementation could increase the uncertainties and costs surrounding the prosecution of its patent applications and the enforcement or defense of Gemphire's issued patents.

Additionally, the U.S. Supreme Court has ruled on several patent cases in recent years, such as Association for Molecular Pathology v. Myriad Genetics, Inc. (Myriad I), Mayo Collaborative Services v. Prometheus Laboratories, Inc. and Alice Corporation Pty. Ltd. v. CLS Bank International, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to Gemphire's ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that would weaken Gemphire's ability to obtain new patents or to enforce its existing patents and patents that Gemphire might obtain in the future.

***Gemphire may not be able to protect or practice its intellectual property rights throughout the world.***

In jurisdictions where Gemphire has not obtained patent protection, competitors may use Gemphire's intellectual property to develop their own products and further, may export otherwise infringing products to territories where Gemphire has patent protection, but where it is more difficult to enforce a patent as compared to the U.S. Competitor products may compete with gemcabene, if approved, or any future product candidate in jurisdictions where Gemphire does not have issued or granted patents or where Gemphire issued or granted patent claims or other intellectual property rights are not sufficient to prevent competitor activities in these jurisdictions. The legal systems of certain countries, particularly certain developing countries, make it difficult to enforce patents and such

countries may not recognize other types of intellectual property protection, particularly that relating to pharmaceuticals. This could make it difficult for Gemphire to prevent the infringement of its patents or marketing of competing products in violation of its proprietary rights generally in certain jurisdictions. Proceedings to enforce Gemphire's patent rights in foreign jurisdictions could result in substantial cost and divert its efforts and attention from other aspects of Gemphire's business.

The laws of some jurisdictions do not protect intellectual property rights to the same extent as the laws in the United States, and many companies have encountered significant difficulties in protecting and defending such rights in such jurisdictions. If Gemphire, or its licensors, encounter difficulties in protecting, or are otherwise precluded from effectively protecting, the intellectual property rights important for Gemphire's business in such jurisdictions, the value of these rights may be diminished and Gemphire may face additional competition from others in those jurisdictions. Many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If Gemphire, or any of its licensors, are forced to grant a license to third parties with respect to any patents relevant to Gemphire's business, its competitive position in the relevant jurisdiction may be impaired and its business and results of operations may be adversely affected.

***Gemphire may become involved in lawsuits to protect or enforce its patents and other intellectual property rights, which could be expensive, time consuming and unsuccessful.***

Competitors may infringe Gemphire's patents and other intellectual property rights. To counter infringement or unauthorized use, Gemphire may be required to file infringement claims, which can be expensive and time consuming. In addition, in an infringement proceeding, a court may decide that Gemphire's patent is invalid or unenforceable, or may refuse to stop the other party from using the technology on the grounds that Gemphire's patents do not cover the technology in question. An adverse result in any litigation proceeding could put one or more of Gemphire's patents at risk of being invalidated or interpreted narrowly. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of Gemphire's confidential information could be compromised by disclosure during this type of litigation. Moreover, there can be no assurance that Gemphire will have sufficient financial or other resources to file and pursue such infringement claims, which typically last for years before they are concluded.

Litigation proceedings may fail and, even if successful, may result in substantial costs and distraction of Gemphire's management and other employees. Gemphire may not be able to prevent, alone or with its collaborators, misappropriation of its proprietary rights, particularly in countries where the laws may not protect those rights as fully as in the United States.

In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of Gemphire common stock.

***Third parties may initiate legal proceedings alleging that Gemphire is infringing their intellectual property rights, the outcome of which would be uncertain and could have an adverse effect on the success of Gemphire's business.***

Gemphire's commercial success depends upon its ability and the ability of its collaborators to develop, manufacture, market and sell gemcabene and any other product candidate Gemphire may pursue in the future and use its proprietary technologies without infringing the proprietary rights and intellectual property of third parties. The biotechnology and pharmaceutical industries are characterized by extensive litigation regarding patents and other intellectual property rights. Gemphire may in the

future become party to, or threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to its medicines and technology, including interference or derivation proceedings, post-grant reviews, inter partes reviews, or other procedures before the USPTO or other similar procedures in foreign jurisdictions. Third parties may assert infringement claims against Gemphire based on existing patents or patents that may be granted in the future. If Gemphire is found to infringe a third party's intellectual property rights, Gemphire could be required to obtain a license from such third party to continue developing and marketing Gemphire's medicines and technology. However, Gemphire may not be able to obtain any required license on commercially reasonable terms or at all. Even if Gemphire were able to obtain a license, it could be non-exclusive, thereby giving its competitors and other third parties access to the same technologies licensed to it. Gemphire could be forced, including by court order, to cease developing and commercializing the infringing technology or medicine. In addition, Gemphire could be found liable for substantial monetary damages, potentially including treble damages and attorneys' fees, if Gemphire is found to have willfully infringed. A finding of infringement could prevent Gemphire from commercializing a product candidate or force Gemphire to cease some of its business operations, which could harm its business. Alternatively, Gemphire may need to redesign its infringing products, which may be impossible or require substantial time and monetary expenditure. Claims that Gemphire has misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on Gemphire's business.

The cost to Gemphire of any litigation or other proceeding relating to patent or other proprietary rights, even if resolved in its favor, could be substantial and may result in substantial costs and distraction of its management and other employees. Some of Gemphire's competitors may be able to sustain the costs of complex patent litigation more effectively than Gemphire can because they have substantially greater resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could delay Gemphire's research and development efforts and limit its ability to continue its operations.

***Gemphire may be subject to damages resulting from claims that its employees or it has wrongfully used or disclosed alleged trade secrets of their former employers.***

Gemphire's employees and consultants have been previously employed at other biotechnology or pharmaceutical companies, including its competitors or potential competitors. Although Gemphire is not aware of any claims currently pending against it, it may be subject to claims that these employees or Gemphire has inadvertently or otherwise used or disclosed trade secrets or other proprietary information or intellectual property of the former employers of its employees. Litigation may be necessary to defend against these claims. Even if Gemphire is successful in defending against these claims, litigation could result in substantial costs and be a distraction to management. If Gemphire fails in defending such claims, in addition to paying money claims, Gemphire may lose valuable intellectual property rights or personnel. A loss of key personnel or their work product could hamper or prevent Gemphire's ability to commercialize gemcabene, which would adversely affect Gemphire's commercial development efforts.

***If Gemphire is not able to adequately prevent disclosure of trade secrets and other proprietary information, the value of any product Gemphire may pursue could be significantly diminished.***

Gemphire may rely upon trade secrets, know-how and continuing technological innovation to develop and maintain its competitive position. However, trade secrets are difficult to protect. Gemphire relies in part on confidentiality agreements with its employees, consultants, outside scientific collaborators, sponsored researchers, contract manufacturers, vendors and other advisors to protect its trade secrets and other proprietary information. These agreements may not effectively prevent disclosure of confidential information and may not provide an adequate remedy in the event of

unauthorized disclosure of confidential information. In addition, Gemphire cannot guarantee that it has executed these agreements with each party that may have or have had access to trade secrets.

Moreover, because Gemphire acquired certain rights to gemcabene from Pfizer, Gemphire must rely on Pfizer's practices, and those of its predecessors, with regard to parties that may have had access to trade secrets related thereto. Any party with whom they or Gemphire has executed such an agreement may breach that agreement and disclose Gemphire's proprietary information, including Gemphire's trade secrets, and Gemphire may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States are less willing or unwilling to protect trade secrets. If any of Gemphire's trade secrets were to be lawfully obtained or independently developed by a competitor, Gemphire would have no right to prevent them, or those to whom they disclose such trade secrets, from using that technology or information to compete with it. If any of Gemphire's trade secrets were to be disclosed to or independently developed by a competitor or other third-party, Gemphire's competitive position would be harmed.

***Gemphire has registration for three United States trademarks and for one European Union trademark.***

Gemphire has registrations for three United States trademarks, "Gemphire", the Gemphire logo and "Advancing a class on top of statins", and a registration of "Gemphire Therapeutics Inc." in the European Union. If Gemphire does not secure and maintain registrations for its trademarks, it may encounter more difficulty in enforcing them against third parties than it otherwise would, which could affect its business. Gemphire has also not yet registered trademarks for any product candidate in any jurisdiction. When Gemphire files trademark applications for a product candidate, those applications may not be allowed for registration, and registered trademarks may not be obtained, maintained or enforced. During trademark registration proceedings in the United States and foreign jurisdictions, Gemphire may receive rejections. Gemphire is given an opportunity to respond to those rejections, but it may not be able to overcome such rejections. In addition, in the USPTO and in comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against Gemphire's trademarks, and its trademarks may not survive such proceedings.

In addition, any proprietary name Gemphire proposes to use with gemcabene or any future product candidate in the United States must be approved by the FDA, regardless of whether Gemphire has registered it, or applied to register it, as a trademark. The FDA typically conducts a review of proposed drug names, including an evaluation of potential for confusion with other drug names. If the FDA objects to any proposed proprietary drug name for any product candidate, Gemphire may be required to expend significant additional resources in an effort to identify a suitable substitute proprietary drug name that would qualify under applicable trademark laws, not infringe the existing rights of third parties and be acceptable to the FDA.

If Gemphire registers any of its trademarks, its trademarks or trade names may be challenged, infringed, circumvented or declared generic or determined to infringe on other marks. Gemphire may not be able to protect its rights to these trademarks and trade names or may be forced to stop using these names, which it needs for name recognition by potential partners or customers in its markets of interest. If Gemphire is unable to establish name recognition based on its trademarks and trade names, Gemphire may not be able to compete effectively and its business may be adversely affected.

***Obtaining and maintaining Gemphire's patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and Gemphire's patent protection could be reduced or eliminated for noncompliance with these requirements.***

The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment or other provisions during the patent application process. In addition, periodic maintenance and annuity fees on any issued patent are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of the patent. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, Gemphire's competitors might be able to enter the market, which would have an adverse effect on Gemphire's business.

**Risks Related to Gemphire's Operations, Employee Matters and Managing Growth**

***Gemphire is dependent on its key personnel, and if Gemphire is not successful in attracting and retaining highly qualified personnel, it may not be able to successfully implement its business strategy.***

Gemphire is highly dependent on its management, scientific and medical personnel. Gemphire has entered into employment agreements with its executive officers, but any employee may terminate his or her employment with Gemphire. The loss of the services of any of Gemphire's executive officers, other key employees or consultants and other scientific and medical advisors in the foreseeable future, might impede the achievement of Gemphire's research, development and commercialization objectives. Gemphire relies on consultants and advisors, including scientific and clinical advisors, to assist it in formulating its development and commercialization strategy. Gemphire's consultants and advisors may be employed by employers other than Gemphire and may have commitments under consulting or advisory contracts with other entities that may limit their availability to Gemphire. Recruiting and retaining qualified scientific personnel and business and commercial personnel will also be critical to Gemphire's success. Gemphire may not be able to attract and retain these personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. Gemphire also experiences competition for the hiring of scientific personnel from universities and research institutions. Failure to succeed in clinical trials may also make it more challenging to recruit and retain qualified scientific personnel.

***Gemphire implemented a reduction in force that may have an adverse impact on its drug development activities, and attrition that may occur following this reduction could disrupt Gemphire's operations. In addition, Gemphire may not achieve anticipated benefits and savings from the reduction or be able to implement or benefit from any additional cost containment measures in the future.***

In September 2018, the Gemphire Board approved a workforce reduction to reduce costs and conserve cash resources in light of the delay in Gemphire's Phase 3 trials resulting from the FDA's request for additional data following the completion of two year carcinogenicity studies conducted in connection with the partial clinical hold on gemcabene. The workforce reduction included 5 employees, which represented approximately 33% of its workforce at such time, and was completed in the fourth quarter of 2018.

The reduction in force, which included two of its executive officers, and any attrition that may occur following this reduction, has resulted in the loss of institutional knowledge and expertise and in the reallocation and combination of certain roles and responsibilities across the organization, all of which could adversely affect Gemphire's operations and its drug development activities. Gemphire's efforts to improve its managerial, operational and financial systems and manage its operations may be made more challenging given the reduction in force. As a result, Gemphire's management may need to

divert a disproportionate amount of its attention away from its day-to-day strategic and operational activities, and devote a substantial amount of time to managing these organizational changes.

Further, the reduction in force may yield unintended consequences, such as reduced employee morale and attrition beyond Gemphire's intended reduction in force, which may result in Gemphire seeking contract support at unplanned additional expense. Gemphire may not achieve anticipated benefits from the reduction in force. Due to its limited resources, Gemphire may not be able to effectively manage its operations or recruit and retain qualified personnel when and if needed, which may have an adverse impact on its drug development activities, result in weaknesses in its infrastructure and operations, risks that Gemphire may not be able to comply with legal and regulatory requirements, loss of business opportunities, loss of employees and reduced productivity among remaining employees. If Gemphire's management is unable to effectively manage this transition and reduction in force or successfully implement any additional cost containment measures, Gemphire's expenses may be more than expected, Gemphire may utilize cash more quickly than expected and Gemphire may not be able to implement its business strategy or continue the development of gemcabene.

In addition, Gemphire's ability to successfully complete the merger depends in large part on its ability to retain its remaining personnel. Despite its efforts to retain these employees, one or more may terminate their employment with Gemphire on short notice. The loss of the services of any of these employees could potentially harm Gemphire's ability to consummate the merger, to run its day-to-day business operations, as well as to fulfill its reporting obligations as a public company.

***Gemphire may need to develop and expand its company, and it may encounter difficulties in managing this development and expansion, which could disrupt its operations.***

As of September 30, 2019, Gemphire had seven full-time employees and, if Gemphire secures additional funding and receives a favorable decision from the FDA regarding its partial clinical hold, Gemphire may need to increase its number of employees and the scope of its operations as it furthers the clinical development of gemcabene beyond Phase 2 trials and continues to operate as a public company. To manage any anticipated development and potential expansion, Gemphire must continue to implement and improve its managerial, operational and financial systems, maintain adequate facilities and continue to recruit and train qualified personnel. Also, Gemphire's management may need to divert a disproportionate amount of its attention away from its day-to-day activities and devote a substantial amount of time to managing these development activities. Due to Gemphire's limited resources, Gemphire may not be able to manage the expansion of its operations or hire additional personnel. This may result in weaknesses in Gemphire's infrastructure, and give rise to operational mistakes, loss of business opportunities, loss of employees and reduced productivity among remaining employees. Any physical expansion of its operations may lead to significant costs and may divert financial resources from other projects, such as the development of gemcabene. If Gemphire's management is unable to effectively manage its expected development and future expansion, its expenses may increase more than expected, its ability to generate or increase its revenue could be reduced and it may not be able to implement its business strategy. Gemphire's future financial performance and its ability to commercialize gemcabene or any future product candidate, if approved, and compete effectively will depend, in part, on its ability to effectively manage the future development and expansion of Gemphire.

***A variety of risks associated with operating internationally for Gemphire and its collaborators could adversely affect its business.***

In addition to Gemphire's U.S. operations, Gemphire may pursue international operations in the future and would face risks associated with such global operations, including possible unfavorable regulatory, pricing and reimbursement, legal, political, tax and labor conditions, which could harm its

business. Gemphire plans to conduct clinical trials outside of the United States. Gemphire is subject to numerous risks associated with international business activities, including:

- compliance with differing or unexpected regulatory requirements for gemcabene or any other product candidate;
- different medical practices and customs affecting acceptance of gemcabene, if approved, or any other approved product in the marketplace;
- language barriers;
- the interpretation of contractual provisions governed by foreign law in the event of a contract dispute;
- difficulties in staffing and managing foreign operations, and an inability to control commercial or other activities where Gemphire is relying on third parties;
- workforce uncertainty in countries where labor unrest is more common than in the United States;
- potential liability under the Foreign Corrupt Practice Act of 1977 or comparable foreign regulations;
- production shortages resulting from any events affecting raw material supply or manufacturing capability abroad;
- foreign government taxes, regulations and permit requirements;
- U.S. and foreign government tariffs, trade restrictions, price and exchange controls and other regulatory requirements;
- economic weakness, including inflation, natural disasters, war, events of terrorism or political instability in particular foreign countries;
- fluctuations in currency exchange rates, which could result in increased operating expenses and reduced revenues;
- compliance with tax, employment, immigration and labor laws, regulations and restrictions for employees living or traveling abroad;
- changes in diplomatic and trade relationships; and
- challenges in enforcing its contractual and intellectual property rights, especially in those foreign countries that do not respect and protect intellectual property rights to the same extent as the United States.

***Gemphire's business and operations would suffer in the event of system failures or unplanned events.***

Despite the implementation of security measures, Gemphire's internal computer systems and those of its current and future contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. While Gemphire is not aware of any such material system failure, accident or security breach to date, if such an event were to occur and cause interruptions in Gemphire's operations, it could result in a material disruption of its development programs and its business operations. For example, the loss of clinical trial data from completed or future clinical trials could result in delays in Gemphire's regulatory approval efforts and significantly increase its costs to recover or reproduce the data. To the extent that any disruption or security breach were to result in a loss of, or damage to, its data or applications, or inappropriate disclosure of confidential or proprietary information, Gemphire could incur liability and the further development and commercialization of its product candidates could be delayed.

Furthermore, any unplanned event, such as flood, fire, explosion, tornadoes, earthquake, extreme weather condition, medical epidemics, power shortage, telecommunication failure or other natural or manmade accidents or incidents that result in Gemphire being unable to fully utilize the facilities, may have an adverse effect on Gemphire's ability to operate its business, particularly on a daily basis, and have significant negative consequences on Gemphire's financial and operating conditions. Loss of access to these facilities may result in increased costs, delays in the development of Gemphire's product candidates or interruption of Gemphire's business operations.

**Risks Related to Gemphire Common Stock**

***The price of Gemphire common stock may be volatile and fluctuate substantially, which could result in substantial losses of Gemphire common stock.***

The trading price of Gemphire common stock is likely to be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond Gemphire's control, including limited trading volume. In addition to the factors discussed in this "Risk Factors" section and elsewhere in this proxy statement/prospectus/information statement, these factors include:

- Gemphire's ability to consummate the transactions contemplated by the Merger Agreement, including the merger;
- adverse results or delays in preclinical studies, clinical trials, regulatory decisions or the development status of gemcabene or any product candidates Gemphire may pursue in the future;
- Gemphire's ability to raise sufficient additional funds necessary for the continued development of gemcabene, whether through potential collaborative, partnering or other strategic arrangements or otherwise;
- Gemphire's ability to realize any value from gemcabene, particularly in light of the partial clinical hold and the terminated NAFLD trial;
- the terms and timing of any future collaborative, licensing or other strategic arrangements that Gemphire may establish;
- uncertainties created by Gemphire's future management turnover;
- Gemphire's inability to comply with the minimum listing requirements of the Nasdaq Stock Market LLC;
- the timing of achievement of, or failure to achieve, Gemphire's, Beijing SL's and any potential collaborators' clinical, regulatory and other milestones, such as the commencement of clinical development, the completion of a clinical trial or the receipt of regulatory approval;
- decisions to initiate a clinical trial, not initiate a clinical trial, or terminate an existing clinical trial;
- adverse regulatory decisions, including failure to receive regulatory approval for gemcabene or regulatory actions requiring or leading to a delay or stoppage of any clinical trials;
- the commercial success of any product approved by the FDA or its foreign counterparts;
- changes in applicable laws, rules or regulations;
- disputes with Pfizer regarding Gemphire's licensed rights to gemcabene;
- adverse developments concerning Gemphire's manufacturers, suppliers, collaborators and other third parties;

- Gemphire's failure to commercialize gemcabene or any product candidates it may pursue in the future;
- the success of competitive drugs;
- if Gemphire's patents covering its products candidates expire or are invalidated or are found to be unenforceable, or if some or all of its patent applications do not result in issued patents or result in patents with narrow, overbroad, or unenforceable claims;
- additions or departures of key scientific or management personnel;
- unanticipated safety concerns related to the use of gemcabene or any product candidates Gemphire may pursue in the future;
- Gemphire's announcements or its competitor's announcements regarding new products, enhancements, significant contracts, acquisitions or strategic partnerships and investments;
- changes in the structure of healthcare payment systems;
- the size and growth of Gemphire's target markets;
- Gemphire's failure, or companies perceived to be similar to it, to meet external expectations or management guidance;
- fluctuations in Gemphire's quarterly financial results or the quarterly financial results of companies perceived to be similar to Gemphire;
- publication of research reports about Gemphire or its industry, recommendations, earning results or estimates or withdrawal of research coverage by securities analysts;
- changes in the market valuations of similar companies;
- changes in general economic, political and market conditions in any of the regions in which Gemphire conducts its business;
- changes in Gemphire's capital structure or dividend policy, future issuances of securities, sales of common stock by officers, directors and significant Gemphire Stockholders or Gemphire's incurrence of additional debt;
- trading volume of Gemphire common stock;
- changes in accounting practices and ineffectiveness of Gemphire's internal controls;
- disputes, litigation or developments relating to proprietary rights;
- timing of milestones and royalty payments; and
- other events or factors, many of which are beyond its control.

In addition, the stock market in general, Nasdaq, and the stock of biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of Gemphire common stock, regardless of its actual operating performance. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company's securities. This type of litigation, if instituted, could result in substantial costs and a diversion of management's attention and resources, which would harm Gemphire's business, operating results or financial condition.

***Gemphire is not in compliance with Nasdaq's continued listing requirements. If Gemphire is unable to comply with Nasdaq's continued listing requirements, Gemphire common stock could be delisted, which could affect Gemphire common stock's market price and liquidity and reduce its ability to raise capital.***

Gemphire common stock is currently listed on the Nasdaq Capital Market. Nasdaq imposes, among other requirements, continued listing standards including minimum bid, public float and stockholders' equity requirements.

On March 20, 2019, Gemphire received written notice from the Nasdaq stating that it no longer complied with the minimum stockholders' equity requirement under Nasdaq Listing Rule 5450(b)(1)(A) for continued listing on the Nasdaq Global Market because its stockholders' equity, as reported in its Annual Report on Form 10-K for the year ended December 31, 2018, had fallen below $10 million. The notification letter also indicated that Gemphire does not meet the alternative compliance standards set forth in Nasdaq Listing Rule 5450(b).

Under applicable Nasdaq rules, Gemphire had 45 calendar days from the date of the notification letter, or until May 6, 2019, to submit a plan to regain compliance. On May 6, 2019, the Gemphire Board approved an application to transfer Gemphire common stock to the Nasdaq Capital Market, which has a minimum stockholders' equity requirement of $2.5 million for continued listing, and Gemphire timely submitted its plan and application to transfer the Gemphire common stock to the Nasdaq Capital Market. On May 10, 2019, Gemphire received approval from Nasdaq to transfer the listing of its common stock to the Nasdaq Capital Market, which was effective at the opening of business on May 14, 2019.

On August 8, 2019, Gemphire received a notice from Nasdaq stating that, for the last 30 consecutive business days, the closing bid price for Gemphire common stock was below the $1.00 per share minimum bid price requirement for continued listing on The Nasdaq Capital Market under Nasdaq Listing Rule 5550(a)(2). In accordance with Nasdaq Listing Rule 5810(c)(3)(A), Gemphire has 180 calendar days, or until February 4, 2020, to regain compliance with the minimum bid price requirement. To regain compliance, the closing bid price of the Gemphire common stock must be at least $1.00 per share for a minimum of 10 consecutive business days at any time during this 180-day period. If Gemphire regains compliance with the minimum bid price rule, Nasdaq will provide Gemphire with written confirmation and will close the matter.

If Gemphire does not regain compliance with the rule by February 4, 2020, Gemphire may be eligible for an additional 180 calendar day compliance period. To qualify, Gemphire would need to meet the continued listing requirement for market value of publicly held shares and all other applicable standards for initial listing on The Nasdaq Capital Market, with the exception of the bid price requirement, and would need to provide written notice of Gemphire's intention to cure the deficiency during the second compliance period by effecting a reverse stock split, if necessary. However, if it appears to Nasdaq that Gemphire will not be able to cure the deficiency, or if Gemphire is not eligible for a second compliance period, Nasdaq will notify Gemphire that Gemphire common stock will be subject to delisting. In the event of such a notification, Gemphire may appeal the determination, but there can be no assurance Nasdaq would grant Gemphire's request for continued listing.

On August 12, 2019, Gemphire received written notice from Nasdaq stating that Gemphire no longer complies with the minimum stockholders' equity requirement under Nasdaq Listing Rule 5550(b)(1) for continued listing on the Nasdaq Capital Market because Gemphire's stockholder's equity, as reported in Gemphire's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2019, had fallen below $2.5 million. The notice also indicated that Gemphire does not meet the alternative compliance standards.

On September 26, 2019, Gemphire submitted its compliance plan to Nasdaq, explaining how Gemphire believes that the completion of its proposed merger will address the stockholders' equity deficiency.

On October 4, 2019, Nasdaq notified Gemphire that it had determined to grant Gemphire an extension until February 10, 2020 to regain compliance. Under the terms of the extension, NeuroBo must receive approval of its initial listing application and Gemphire must consummate the merger on or before February 10, 2020. If NeuroBo fails to receive approval of its initial listing application or Gemphire fails to consummate the merger prior to February 10, 2020, Nasdaq will provide written notification to Gemphire that its securities will be delisted. At that time, Gemphire may appeal Nasdaq's determination to a Listing Qualifications Panel.

If Gemphire is unable to regain compliance, Nasdaq may make a determination to delist Gemphire common stock. Continued listing of Gemphire common stock on the Nasdaq Capital Market is a condition to the Closing of the merger. Furthermore, if Gemphire common stock is delisted, it will trade, if at all, only on an over-the-counter market, and then only if one or more registered broker-dealer market makers comply with quotation requirements. Upon any such delisting, Gemphire common stock could become subject to the regulations of the SEC relating to the market for penny stocks. Generally, any equity security not traded on a national securities exchange that has a market price of less than $5.00 per share may be deemed a penny stock. Any delisting of Gemphire common stock could adversely affect the market liquidity of Gemphire common stock and the market price of Gemphire common stock could decrease. Furthermore, if Gemphire common stock were delisted it could adversely affect Gemphire's ability to obtain financing for the continuation of its operations and its ability to attract and retain employees by means of equity compensation and/or result in the loss of confidence by investors.

***If there are large sales of Gemphire common stock, the market price of Gemphire common stock could drop substantially. In addition, a significant number of shares of Gemphire common stock are subject to issuance upon exercise of outstanding options and warrants, which upon such exercise would result in dilution to Gemphire securityholders.***

If Gemphire or Gemphire's existing stockholders sell a large number of shares of Gemphire common stock or the public market perceives that Gemphire or Gemphire's existing stockholders might sell shares of Gemphire common stock, the market price of the Gemphire common stock could decline significantly. As of September 30, 2019, Gemphire had 14,872,411 outstanding shares of common stock, substantially all of which may be sold in the public market without restriction, subject to any affiliate restrictions. On September 1, 2017, Gemphire entered into an equity distribution agreement with Piper Jaffray &Co ("Piper"), as agent, under which Gemphire may, from time to time, issue and sell shares of its common stock having up to an aggregate offering price of $50,000,000 through an "at the market offering" program. Though Gemphire's ability to sell shares of its common stock through Piper under the equity distribution agreement is practically limited or precluded altogether due to Gemphire's currently-depressed stock price, to the extent that Gemphire sells shares of its common stock pursuant to the equity distribution agreement in the future, Gemphire Stockholders will experience dilution. In addition, as of September 30, 2019, there were 2,546,268 shares of Gemphire common stock issuable upon the exercise of outstanding options having a weighted-average exercise price of $8.92 per share and 1,014,204 shares of Gemphire common stock issuable upon exercise of outstanding warrants having a weighted-average exercise price of $10.30. Although Gemphire cannot determine at this time how many of the currently outstanding options or warrants will ultimately be exercised, the options and warrants will likely be exercised only if the exercise price is below the market price of the Gemphire common stock. To the extent that the options or warrants are exercised, additional shares of Gemphire common stock will be issued that will be eligible for resale in the public market, which will result in dilution to Gemphire's securityholders.

As described in the section entitled "*Agreements Related to the Merger—Lock-Up Agreements*" in this proxy statement/prospectus/information statement and as of September 30, 2019, Gemphire Stockholders holding approximately 14% of the outstanding Gemphire common stock and NeuroBo Stockholders holding approximately 90% of the outstanding NeuroBo capital stock on an as converted to common basis were parties to lock-up agreements restricting the disposition of their shares of Gemphire common stock and NeuroBo capital stock , respectively. Gemphire has filed an initial listing application with Nasdaq pursuant to Nasdaq "business combination" rules. In order to meet the requirements for listing on Nasdaq, the post-merger combined company will be required to satisfy Nasdaq's initial listing requirements, including the financial and liquidity requirements for the applicable Nasdaq market tier upon which the post-merger combined company's shares will trade following the merger. Due to recent changes in these listing requirements, certain Nasdaq market tiers and standards require companies seeking to list to demonstrate a minimum "Market Value of Unrestricted Publicly Held Shares" as of the effective time of the closing of a business combination. Per current Nasdaq rules and requirements, the "Market Value of Unrestricted Publicly Held Shares" may not include the value of any securities subject to resale restrictions, including the types of restrictions set forth in the Gemphire and NeuroBo lock-up agreements. The scope of the waiver of any restrictions in the lock-up agreements and the holders for whom these restrictions may be waived will depend on the then-current value and price of the Gemphire common stock as of the closing of the merger and is further discussed in the section entitled "*Agreements Related to the Merger—Lock-Up Agreements*" in this proxy statement/prospectus/information statement. The waiver of any lock-up restrictions may permit holders of Gemphire common stock previously subject to lock-up restrictions to dispose of some or all of their shares of Gemphire common stock following the closing of the merger. These dispositions could result in a reduction of the market price of the Gemphire common stock.

***Provisions in Gemphire's corporate charter documents and under Delaware law could make an acquisition of Gemphire, which may be beneficial to its stockholders, more difficult and may prevent attempts by its stockholders to replace or remove its current management.***

Provisions in the Gemphire Certificate of Incorporation and the Gemphire Bylaws may discourage, delay or prevent a merger, acquisition or other change in control of Gemphire that stockholders may consider favorable, including transactions in which Gemphire Stockholders might otherwise receive a premium for their shares. These provisions could also limit the price that investors might be willing to pay in the future for shares of Gemphire common stock, thereby depressing the market price of Gemphire common stock. In addition, because the Gemphire Board is responsible for appointing the members of Gemphire's management team, these provisions may frustrate or prevent any attempts by Gemphire Stockholders to replace or remove its current management by making it more difficult for Gemphire Stockholders to replace members of the Gemphire Board. Among other things, these provisions:

- establish a classified board of directors such that not all members of the board are elected at one time;
- allow the authorized number of its directors to be changed only by resolution of its board of directors;
- limit the manner in which Gemphire Stockholders can remove directors from the board;
- establish advance notice requirements for stockholder proposals that can be acted on at stockholder meetings and nominations to its board of directors;
- require that stockholder actions must be effected at a duly called stockholder meeting and prohibit actions by Gemphire Stockholders by written consent;
- prohibit Gemphire Stockholders from calling special meetings;

- Authorize the Gemphire Board to issue preferred stock without stockholder approval, which preferred stock may include rights superior to the rights of the holders of common stock, and which could be used to institute a shareholder rights plan, or so-called "poison pill," that would work to dilute the stock ownership of a potential hostile acquirer, effectively preventing acquisitions that have not been approved by the Gemphire Board; and

- require the approval of the holders of at least two-thirds of the votes that all Gemphire Stockholders would be entitled to cast to amend or repeal certain provisions of its charter or bylaws.

Moreover, because Gemphire is incorporated in Delaware, Gemphire is governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a person who owns in excess of 15% of its outstanding voting stock from merging or combining with it for a period of three years after the date of the transaction in which the person acquired in excess of 15% of its outstanding voting stock, unless the merger or combination is approved in a prescribed manner.

***An active trading market for Gemphire common stock may not be maintained.***

Gemphire common stock is currently traded on the Nasdaq Capital Market, but Gemphire can provide no assurance that Gemphire will be able to maintain an active trading market for its shares on the Nasdaq Capital Market or any other exchange in the future. If there is no active market for its common stock, it may be difficult for Gemphire Stockholders to sell shares without depressing the market price for the shares or at all.

***If securities analysts do not publish research or reports about Gemphire's business or if they publish negative evaluations of Gemphire's stock, the price of Gemphire's stock could decline.***

If one or more of the analysts covering Gemphire's business downgrade their evaluations of its stock or publish inaccurate or unfavorable research about its business, the price of Gemphire's stock could decline. If one or more of these analysts cease to cover its stock, Gemphire could lose visibility in the market for its stock, which in turn could cause its stock price and trading volume to decline.

***Gemphire's executive officers, directors, and their affiliates exercise significant control over Gemphire, which will limit the ability of Gemphire Stockholders to influence corporate matters and could delay or prevent a change in corporate control.***

As of September 30, 2019, Gemphire's officers, directors, and their respective affiliates had beneficial ownership, in the aggregate, of approximately 14% of its outstanding common stock.

These stockholders, if they act together, may be able to influence Gemphire's management and affairs and control the outcome of matters submitted to Gemphire Stockholders for approval, including the election of directors, amendments of Gemphire's organizational documents, and any merger, consolidation, sale of all or substantially all of its assets or other major corporate transaction. Some of these stockholders acquired some or all of their shares of common stock for substantially less than the current trading price of its common stock, and these stockholders may have interests, with respect to Gemphire common stock, that are different from other Gemphire Stockholders. In addition, this concentration of ownership might adversely affect the market price of Gemphire common stock, have the effect of delaying, deferring or preventing a change of control of Gemphire, or discourage a potential acquirer from making a tender offer or otherwise attempting to obtain control of Gemphire.

***Gemphire is an "emerging growth company" and a "smaller reporting company" and Gemphire cannot be certain if the reduced reporting requirements applicable to such companies could make its common stock less attractive to investors.***

Gemphire is an "emerging growth company," as defined in the JOBS Act. For as long as Gemphire continues to be an emerging growth company, Gemphire may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not "emerging growth companies," including exemption from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002 (Sarbanes-Oxley Act), reduced disclosure obligations regarding executive compensation in its periodic reports and proxy statements, and exemptions from the requirements of holding a non-binding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. Gemphire has irrevocably elected not to avail itself of this exemption from new or revised accounting standards and, therefore, will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

Gemphire will remain an emerging growth company until the earlier of (1) the last day of the fiscal year (a) following the fifth anniversary of the closing of the IPO, (b) in which Gemphire has total annual gross revenue of at least $1.07 billion, or (c) in which Gemphire is deemed to be a large accelerated filer, which means the market value of its common stock that is held by non-affiliates exceeds $700 million as of the prior June 30th, and (2) the date on which Gemphire has issued more than $1 billion in non-convertible debt during the prior three-year period.

Even after Gemphire no longer qualifies as an emerging growth company, Gemphire may still qualify as a "smaller reporting company," which would allow it to take advantage of many of the same exemptions from disclosure requirements, including reduced disclosure obligations regarding executive compensation in its periodic reports and proxy statements.

Gemphire cannot predict if investors will find Gemphire common stock less attractive because Gemphire may rely on these exemptions. If some investors find Gemphire common stock less attractive as a result, there may be a less active trading market for Gemphire common stock and its stock price may be more volatile.

***Gemphire incurs increased costs as a result of operating as a public company, and Gemphire's management is required to devote substantial time to compliance initiatives.***

As a public company, and particularly after Gemphire is no longer an "emerging growth company" or a "smaller reporting company," Gemphire incurs significant legal, accounting and other expenses. The Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of the stock exchange upon which its common stock is listed and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Gemphire's management and other personnel devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations increase its legal and financial compliance costs and make some activities more time-consuming and costly. However, these rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices. Stockholder activism, the current political environment and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional

compliance costs and impact the manner in which Gemphire operates its business in ways Gemphire cannot currently anticipate.

Gemphire is subject to Section 404 of the Sarbanes-Oxley Act and the related rules of the SEC that generally require its management and independent registered public accounting firm to report on the effectiveness of its internal control over financial reporting. However, for so long as Gemphire remains an "emerging growth company" as defined in the JOBS Act or a "smaller reporting company", Gemphire intends to take advantage of certain exemptions from various reporting requirements that are applicable to public companies that are not emerging growth companies and/or smaller reporting companies, including, but not limited to, for emerging growth companies, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act. Once Gemphire is no longer an "emerging growth company" and if its public float is above $75 million as of the last business day of its most recently completed second fiscal quarter or, if before such date, Gemphire opts to no longer take advantage of the applicable exemption, Gemphire will be required to include an opinion from its independent registered public accounting firm on the effectiveness of its internal control over financial reporting.

To achieve compliance with Section 404, Gemphire engaged in a process to document and evaluate its internal control over financial reporting, which is both costly and challenging. In this regard, Gemphire needs to continue to dedicate internal resources, hire additional finance and accounting personnel, potentially engage outside consultants and adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. During the course of its review and testing, Gemphire may identify deficiencies and be unable to remediate them before Gemphire must provide the required reports. Gemphire or its independent registered public accounting firm may not be able to conclude on an ongoing basis that Gemphire has effective internal control over financial reporting, which could harm its operating results, cause investors to lose confidence in its reported financial information and cause the trading price of its stock to fall. Furthermore, if Gemphire has a material weakness in its internal control over financial reporting, Gemphire may not detect errors on a timely basis and its financial statements may be materially misstated.

In addition, as a public company Gemphire is required to timely file accurate quarterly and annual reports with the SEC under the Exchange Act. In order to report its results of operations and financial statements on an accurate and timely basis, Gemphire will depend on CROs to provide timely and accurate notice of their costs to it. Any failure to report its financial results on an accurate and timely basis could result in sanctions, lawsuits, delisting of its shares from Nasdaq or other adverse consequences that would materially harm its business.

***Gemphire does not anticipate declaring or paying, in the foreseeable future, any cash dividends on its capital stock and, consequently, the ability of Gemphire Stockholders to achieve a return on their investment will depend on appreciation in the price of Gemphire common stock.***

Gemphire has never declared or paid any cash dividend on its capital stock and does not currently intend to do so in the foreseeable future. Gemphire currently anticipates that it will retain future earnings for the development, operation and expansion of its business. Therefore, the success of an investment in shares of its common stock will depend upon any future appreciation in their value. There is no guarantee that shares of Gemphire common stock will appreciate in value or even maintain the price at which you purchased them.

***Gemphire's ability to utilize its NOL carryforwards and certain other tax attributes may be limited.***

Under the Tax Act, federal NOLs incurred in taxable years ending after December 31, 2017 may be carried forward indefinitely, but the deductibility of federal NOLs generated in such years is limited. It is uncertain if and to what extent various states will conform to the Tax Act. In addition, under Sections 382 and 383 of the Code, if a corporation undergoes an "ownership change," generally defined as a greater than 50% change (by value) in its equity ownership over a three-year period, the corporation's ability to use its pre-change NOL carryforwards and other pre-change tax attributes (such as research tax credits) to offset its post-change taxable income or taxes may be limited.

As of December 31, 2018, Gemphire had approximately $20.0 million in U.S. federal and state NOL carryforwards that it may use in certain circumstances to offset future taxable income, if any, and thus reduce any federal and state income tax liability. The federal NOLs incurred prior to January 1, 2018 will begin to expire in 2034 if not utilized. Under the Tax Act, federal NOLs incurred after December 31, 2017 will not expire and may be carried forward indefinitely, but the deductibility of such NOLs is further limited. The state NOLs will begin to expire in 2026. Gemphire also had net tax credit carryforwards of $2.6 million and $0.1 million available to reduce future tax liabilities, if any, for U.S. federal and state purposes, respectively. In addition, Gemphire's ability to utilize these NOLs and tax credit carryforwards to offset future taxable income and tax liability may be significantly limited if it has experienced or if it experiences in the future an "ownership change," as defined in Section 382 of the Code and described above.

Gemphire does not believe that it has experienced an ownership change as a result of its prior issuances. Nevertheless, the rules regarding the determination of whether an ownership change exists are complicated and are subject to differing interpretations, and it is possible that one or more of such issuances might be treated as having resulted in an ownership change. Gemphire has not completed a study to assess whether an ownership change for purposes of Section 382 has occurred, or whether there have been multiple ownership changes since its inception, due to the significant costs and complexities associated with such study. In addition, the merger, if consummated, is expected to constitute an ownership change within the meaning of Section 382 of the Code, thereby substantially limiting Gemphire's future utilization of its NOL carryforwards and tax credit carryforwards.

***The Gemphire Bylaws designate the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by Gemphire Stockholders, which could limit Gemphire Stockholders' ability to obtain a favorable judicial forum for disputes with Gemphire or its directors, officers or employees.***

The Gemphire Bylaws provide that, unless Gemphire consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will generally be the sole and exclusive forum for any derivative action or proceeding brought on its behalf, any action asserting a claim of breach of a fiduciary duty owed by any of its directors, officers or other employees to Gemphire or Gemphire Stockholders, any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, as amended, the Gemphire Certificate of Incorporation or the Gemphire Bylaws or any other action asserting a claim governed by the internal affairs doctrine. This provision does not apply to claims arising under the Securities Act and the Exchange Act or any claim for which the federal courts have exclusive jurisdiction. Any person or entity purchasing or otherwise acquiring any interest in shares of Gemphire capital stock shall be deemed to have notice of and to have consented to the provisions of the Gemphire Bylaws described above. This choice of forum provision may limit a Gemphire Stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with Gemphire or Gemphire's directors, officers or other employees, which may discourage such lawsuits against Gemphire and its directors, officers and employees. Alternatively, if a court were to find this provision inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, Gemphire may incur additional costs associated with resolving

such matters in other jurisdictions, which could adversely affect Gemphire's business and financial condition.

***Unstable market and economic conditions may have serious adverse consequences on Gemphire's business, financial condition and stock price.***

The global credit and financial markets have experienced extreme volatility and disruptions in the past several years, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates and uncertainty about economic stability. Gemphire cannot assure you that further deterioration in credit and financial markets and confidence in economic conditions will not occur. Gemphire's general business strategy may be adversely affected by any such economic downturn, volatile business environment or continued unpredictable and unstable market conditions. If the current equity and credit markets deteriorate, or do not improve, it may make any necessary debt or equity financing more difficult, more costly, and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on Gemphire's growth strategy, financial performance and stock price and could require it to delay or abandon clinical development plans. In addition, there is a risk that one or more of Gemphire's current service providers, manufacturers and other partners may not survive these difficult economic times, which could directly affect Gemphire's ability to attain its operating goals on schedule and on budget.

**Risks Related to NeuroBo**

**Risks Related to NeuroBo's Financial Position and Need for Additional Capital**

***NeuroBo has incurred losses since its inception. NeuroBo expects to continue to incur losses and may never generate profits from operations or maintain profitability.***

Since inception, NeuroBo has incurred operating losses. NeuroBo's net losses were $15.5 million for the year ended December 31, 2018, and $4.4 million for the six months ended June 30, 2019. As of June 30, 2019, NeuroBo had an accumulated deficit of $19.9 million. To date, NeuroBo has financed its operations primarily through issuances of shares of common stock and preferred stock and convertible promissory notes. NeuroBo has not generated any revenue from product sales to date. NeuroBo has devoted substantially all of its efforts to research and development, including clinical trials. NeuroBo has not completed the development of any drugs. NeuroBo expects to continue to incur significant expenses and increasing operating losses for at least the next few years as NeuroBo conducts additional clinical trials for its product candidates; continues to discover and develop additional product candidates; acquires or in-licenses other product candidates and technologies; maintains, expands and protects its intellectual property portfolio; hires additional clinical, scientific and commercial personnel; establishes a commercial manufacturing source and secures supply chain capacity sufficient to provide commercial quantities of any product candidates for which it may obtain regulatory approval; seeks regulatory approvals for any product candidates that successfully complete clinical trials; establishes a sales, marketing and distribution infrastructure to commercialize any products for which it may obtain regulatory approval; and adds operational, financial and management information systems and personnel, including personnel to support its product development and planned future commercialization efforts, as well as to support its transition to a public reporting company. NeuroBo may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect its business. The size of NeuroBo's future net losses will depend, in part, on the rate of future growth of its expenses and its ability to generate revenues. Even if NeuroBo achieves profitability in the future, NeuroBo may not be able to sustain profitability in subsequent periods. The net losses NeuroBo incurs may fluctuate significantly from quarter to quarter and year to year.

NeuroBo's ability to generate profits from operations and thereafter to remain profitable depends heavily on:

- the scope, number, progress, duration, endpoints, cost, results and timing of clinical trials and nonclinical studies of NeuroBo's current or potential future product candidates, including in particular the scope, progress, duration, endpoints, cost, results and timing for initiation and completion of the planned Phase 3 trial of NeuroBo's lead product candidate, NB-01, for the treatment of painful diabetic neuropathy, and the clinical development of NeuroBo's product candidate NB-02, which is in development for the symptomatic and disease modifying treatment of neurodegenerative diseases, including Alzheimer's disease and tauopathies;
- NeuroBo's ability to raise sufficient funds to support the development and potential commercialization of its product candidates;
- the outcomes and timing of regulatory reviews, approvals or other actions;
- NeuroBo's ability to obtain marketing approval for its product candidates;
- NeuroBo's ability to establish and maintain licensing, collaboration or similar arrangements on favorable terms, in addition to its licensing agreement with Dong-A ST Co., Ltd. ("Dong-A ST"), and whether and to what extent NeuroBo retains development or commercialization responsibilities under any new licensing, collaboration or similar arrangement;
- the success of any other business, product or technology that NeuroBo acquires or in which NeuroBo invests;
- NeuroBo's ability to maintain, expand and defend the scope of its intellectual property portfolio;
- NeuroBo's ability to manufacture any approved products on commercially reasonable terms;
- NeuroBo's ability to establish a sales and marketing organization or suitable third-party alternatives for any approved product; and
- the number and characteristics of product candidates and programs that NeuroBo pursues.

Based on NeuroBo's current plans, NeuroBo does not expect to generate significant revenue from product sales unless and until NeuroBo or a potential future licensee or collaborator obtains marketing approval for, and commercializes, one or more of NeuroBo's current or potential future product candidates. Neither NeuroBo nor a licensee may ever succeed in obtaining marketing approval for, or commercializing, NeuroBo's product candidates and, even if it does, NeuroBo may never generate revenues that are significant enough to yield profits from operations. Even if NeuroBo does generate profits from operations, it may not be able to sustain or increase profitability on a quarterly or annual basis. NeuroBo's failure to generate profits from operations and remain profitable would decrease its value and could impair its ability to raise capital, expand its business, maintain its research and development efforts, diversify its product offerings or continue its operations. A decline in NeuroBo's value could also cause you to lose all or part of your investment.

***NeuroBo's limited operating history may make it difficult for you to evaluate the success of NeuroBo's business to date and to assess its future viability.***

NeuroBo was formed in 2017 and did not conduct significant operations until 2018. NeuroBo's operations to date have been limited to organizing the company, entering into licensing arrangements for NB-01, hiring a team of experienced personnel, raising capital, and undertaking nonclinical studies and clinical trials and regulatory activities for its development programs, primarily NB-01. NeuroBo has not yet demonstrated its ability to successfully complete development of any product candidate, including the large-scale, pivotal clinical trials that will be required for regulatory approval of its product candidates, obtain marketing approvals, manufacture a commercial scale product, or arrange

for a third party to do so on its behalf, or conduct sales and marketing activities necessary for successful product commercialization. It takes many years to develop one new product from the time it is discovered to when it is commercially available, if ever. Consequently, any early predictions made about NeuroBo's future success or viability may not be as accurate as they could be if NeuroBo had a longer operating history.

As an early-stage company, NeuroBo may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown factors that may alter or delay its plans. Assuming NeuroBo completes the clinical development of, and obtains marketing approval for, any of its product candidates, NeuroBo will need to transition from a company with a research and development focus to a company capable of supporting commercial activities. NeuroBo may encounter unforeseen expenses, difficulties, complications and delays and may not be successful in such a transition.

***NeuroBo may not be able to attract a strategic partner or find other funding sources for the advancement of its lead product candidate, NB-01, through Phase 3 clinical development. If NeuroBo is unable to identify a partner or other funding sources that are willing to provide the financial resources to support the development of NB-01, or if NeuroBo experiences significant delays in identifying such a partner or funding source, NeuroBo's business and that of the combined organization could be adversely affected.***

NeuroBo is dependent on the success of its lead product candidate, NB-01. NeuroBo's current financial resources are insufficient to complete the Phase 3 clinical development of NB-01. NeuroBo plans to commence the Phase 3 clinical development of NB-01 in the first quarter of 2020, and it intends to explore various avenues to advance NB-01, including securing a pharmaceutical strategic partner or exploring other means for advancing NB-01 that would make available sufficient financial resources to complete the Phase 3 studies.

NeuroBo may not be able to attract a pharmaceutical strategic partner or other funding sources to support the development of NB-01. As is common in the biopharmaceutical industry, NeuroBo faces significant competition in seeking strategic collaborators. Collaborations are complex and time-consuming to negotiate and document. No assurance can be given that any efforts NeuroBo makes to seek strategic partners or funding sources for the advancement of NB-01 will be successfully completed on commercially reasonable terms, on a timely basis or at all.

If NeuroBo is unable to negotiate a favorable partnership or funding arrangement, NeuroBo may have to curtail the development of NB-01, reduce the scope of or delay its intended development programs, or increase expenditures and undertake development activities at its own expense. If NeuroBo elects to increase its expenditures to fund development activities on its own, NeuroBo would need to obtain additional capital, which may not be available to it on acceptable terms or at all. If NeuroBo does not have sufficient funds to advance NB-01, it may not be able to bring its product candidates to market and generate product revenue.

***NeuroBo will require substantial additional funding. If NeuroBo is unable to raise capital when needed, NeuroBo could be forced to delay, reduce or eliminate any product development programs or commercialization efforts.***

NeuroBo's operations have consumed a large amount of cash since inception. NeuroBo expects its research and development expenses to increase substantially in future periods as NeuroBo continues to advance the clinical development of its product candidates and prepares for the launch and commercialization of any product candidates for which it receives regulatory approval, including potentially building its own commercial organization to address the markets for its products. In addition, if NeuroBo obtains marketing approval for any of its product candidates that are not then subject to licensing, collaboration or similar arrangements with third parties, NeuroBo expects to incur significant commercialization expenses related to product sales, marketing, distribution and

manufacturing. Furthermore, NeuroBo will incur additional costs associated with operating as a public company in the United States. Accordingly, NeuroBo will need to obtain substantial additional funding in connection with its continuing operations.

NeuroBo cannot be certain that additional funding will be available on acceptable terms, or at all. If NeuroBo is unable to raise additional capital when needed or in sufficient amounts or on terms acceptable to it, NeuroBo could be forced to delay, reduce or eliminate its research and development programs or any future commercialization efforts of one or more of its product candidates or one or more of its other research and development initiatives. NeuroBo also could be required to:

- seek collaborators for one or more of NeuroBo's current or future product candidates at an earlier stage than otherwise would be desirable or on terms that are less favorable than might otherwise be available; or
- relinquish or license on unfavorable terms NeuroBo's rights to technologies or product candidates that NeuroBo otherwise would seek to develop or commercialize itself.

NeuroBo's future funding requirements, both near and long-term, will depend on many factors, including, but not limited to:

- the scope, number, initiation, progress, timing, costs, design, duration, any potential delays, and results of clinical trials and nonclinical studies for NeuroBo's current or future product candidates, particularly the planned Phase 3 trial of NB-01 for the treatment of painful diabetic neuropathy, and NeuroBo's clinical trials of NB-02, which is in development for the symptomatic and disease modifying treatment of neurodegenerative diseases, including Alzheimer's disease and tauopathies;
- the clinical development plans NeuroBo establishes for these product candidates;
- the number and characteristics of product candidates and programs that NeuroBo develops or may in-license;
- the outcome, timing and cost of regulatory reviews, approvals or other actions to meet regulatory requirements established by the FDA and comparable foreign regulatory authorities, including the potential for the FDA or comparable foreign regulatory authorities to require that NeuroBo perform more studies for its product candidates than those that NeuroBo currently expects;
- NeuroBo's ability to obtain marketing approval for its product candidates;
- the cost of filing, prosecuting, defending and enforcing NeuroBo's patent claims and other intellectual property rights covering its product candidates, including any such patent claims and intellectual property rights that NeuroBo has licensed from Dong-A ST pursuant to the terms of its license agreement with Dong-A ST;
- NeuroBo's ability to maintain, expand and defend the scope of its intellectual property portfolio, including the cost of defending intellectual property disputes, including patent infringement actions brought by third parties against NeuroBo or its product candidates;
- the cost and timing of completion of commercial-scale outsourced manufacturing activities with respect to NeuroBo's product candidates;
- NeuroBo's ability to establish and maintain additional licensing, collaboration or similar arrangements on favorable terms and whether and to what extent NeuroBo retains development or commercialization responsibilities under any new licensing, collaboration or similar arrangement;

- the cost of establishing sales, marketing and distribution capabilities for any product candidates for which NeuroBo may receive regulatory approval in regions where NeuroBo chooses to commercialize its products on its own;
- the success of any other business, product or technology that NeuroBo acquires or in which NeuroBo invests;
- the costs of acquiring, licensing or investing in businesses, product candidates and technologies;
- NeuroBo's need and ability to hire additional management and scientific and medical personnel;
- the costs to operate as a public company in the United States, including the need to implement additional financial and reporting systems and other internal systems and infrastructure for NeuroBo's business;
- market acceptance of NeuroBo's product candidates, to the extent any are approved for commercial sale; and
- the effect of competing technological and market developments.

Conducting preclinical testing and clinical trials is a time-consuming, expensive and uncertain process that takes years to complete, and NeuroBo may never generate the necessary data or results required to obtain marketing approval and achieve product sales. In addition, NeuroBo's product candidates, if approved, may not achieve commercial success. NeuroBo's commercial revenues, if any, will be derived from sales of products that will not be commercially available for sale by NeuroBo for at least the next few years, if at all. Accordingly, NeuroBo will need to continue to rely on additional financing to achieve its business objectives. In addition, NeuroBo may seek additional capital due to favorable market conditions or strategic considerations, even if NeuroBo believes that it has sufficient funds for its current or future operating plans. Additional financing may not be available to NeuroBo on acceptable terms, or at all. The unavailability of additional financing on acceptable terms, or at all, would have an adverse effect on your investment.

***NeuroBo's independent registered public accounting firm has included an explanatory paragraph relating to NeuroBo's ability to continue as a going concern in its report on NeuroBo's audited financial statements included in this proxy statement/prospectus/information statement.***

The report from NeuroBo's independent registered public accounting firm for the year ended December 31, 2018 includes an explanatory paragraph stating that NeuroBo's recurring losses from operations and net capital deficiency raise substantial doubt about NeuroBo's ability to continue as a going concern. If NeuroBo is unable to obtain sufficient funding, its business, prospects, financial condition and results of operations will be materially and adversely affected and NeuroBo and the combined organization may be unable to continue as a going concern. If NeuroBo is unable to continue as a going concern, NeuroBo may have to liquidate its assets and may receive less than the value at which those assets are carried on its audited financial statements, and it is likely that investors will lose all or a part of their investment. After the Closing of the merger, future reports from the combined organization's independent registered public accounting firm may also contain statements expressing substantial doubt about its ability to continue as a going concern. If NeuroBo seeks additional financing to fund its business activities in the future and there remains substantial doubt about its ability to continue as a going concern, investors or other financing sources may be unwilling to provide additional funding to NeuroBo on commercially reasonable terms or at all.

***NeuroBo has identified a material weakness in its internal control over financial reporting that could, if not remediated, result in material misstatements in its financial statements or impair NeuroBo's ability to produce accurate and timely consolidated financial statements, its operating results or its ability to operate its business.***

Ensuring that NeuroBo has adequate internal financial and accounting controls and procedures in place so that we can produce accurate consolidated financial statements on a timely basis is a costly and time-consuming effort that needs to be evaluated frequently. As a private company, NeuroBo has not historically prepared public company financial statements. In connection with the audit of NeuroBo's consolidated financial statements as of and for the year ended December 31, 2018, NeuroBo concluded that there is a material weakness relating to its internal control over financial reporting. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the company's annual or interim consolidated financial statements will not be prevented or detected on a timely basis.

Specifically, NeuroBo identified a material weakness relating to accounting for its clinical trial expenses. Although NeuroBo has begun to take measures to remediate this material weakness and believes that it will be able to remediate the material weakness by the end of the fiscal year ending December 31, 2019, the measures it has taken, and expects to take, to improve the company's internal controls may not be sufficient to address the issues identified, to ensure that the company's internal controls are effective or to ensure that the identified material weakness will not result in a material misstatement of NeuroBo's annual or interim consolidated financial statements. If NeuroBo is unable to correct material weaknesses or deficiencies in internal controls in a timely manner, its ability to record, process, summarize and report financial information accurately and within the time periods specified in the rules and forms of the SEC, will be adversely affected. This failure could negatively affect the market price and trading liquidity of the NeuroBo common stock, cause investors to lose confidence in NeuroBo's reported financial information, subject NeuroBo to civil and criminal investigations and penalties, and materially and adversely impact the company's business and financial condition.

***Raising additional capital may cause dilution to the combined organization's investors, restrict its operations or require it to relinquish rights to its technologies or product candidates. Future debt obligations may expose NeuroBo to risks that could adversely affect its business, operating results and financial condition and may result in further dilution to the combined organization's stockholders.***

Until such time, if ever, as NeuroBo can generate substantial product revenues, NeuroBo expects to finance its cash needs through a combination of equity offerings, debt financings, and licensing, collaboration or similar arrangements. NeuroBo does not have any committed external sources of funds and may seek to raise additional capital at any time. To the extent that NeuroBo raises additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a holder of its common stock. Debt financing, if available, may involve agreements that include covenants limiting or restricting NeuroBo's ability to take specific actions, such as incurring additional debt, making capital expenditures, declaring dividends or other distributions, acquiring or licensing intellectual property rights and other operating restrictions that could adversely impact NeuroBo's ability to conduct its business and may result in liens being placed on its assets and intellectual property. If NeuroBo defaults on such indebtedness, NeuroBo could lose such assets and intellectual property.

If NeuroBo raises additional funds through licensing, collaboration or similar arrangements with third parties, NeuroBo may have to relinquish valuable rights to its technologies, future revenue streams, research and development programs or product candidates or grant licenses on terms that are not favorable to NeuroBo. If NeuroBo is unable to raise additional funds through equity or debt financings or through licensing, collaboration or similar arrangements when needed, NeuroBo may be

required to delay, limit, reduce or terminate its product development or future commercialization efforts or grant rights to develop and market product candidates that NeuroBo would otherwise prefer to develop and market itself.

***NeuroBo has not generated any revenues since inception and will not generate any revenues for the foreseeable future. NeuroBo may never become profitable.***

To date, NeuroBo has not generated any revenues. NeuroBo's ability to generate revenue and become profitable depends upon its ability to successfully obtain marketing approval and commercialize its product candidates, including NB-01, NB-02 or other product candidates that NeuroBo may develop, in-license or acquire in the future. Even if NeuroBo is able to successfully achieve regulatory approval for these product candidates, NeuroBo is unable to predict the extent of any future losses and does not know when any of these product candidates will generate revenue for NeuroBo, if at all. NeuroBo's ability to generate revenue from NB-01 or other product candidates also depends on a number of additional factors, including its ability to:

- successfully complete development activities, including all necessary nonclinical studies and clinical trials;
- complete and submit New Drug Applications, or NDAs, to the FDA and obtain regulatory approval for indications for which there is a commercial market;
- complete and submit marketing applications to, and obtain regulatory approval from, foreign regulatory authorities;
- set and obtain a commercially viable price for its products;
- obtain commercial quantities of its products at acceptable cost levels;
- develop a commercial organization capable of sales, marketing and distribution for the products NeuroBo intends to sell itself in the markets in which NeuroBo has retained commercialization rights;
- find suitable partners to help NeuroBo market, sell and distribute its approved products in other markets; and
- obtain coverage and adequate reimbursement from third-party, including government, payors.

In addition, because of the numerous risks and uncertainties associated with product development, including the possibility that NeuroBo's product candidates may not advance through development or demonstrate safety and efficacy for their intended uses, the FDA or any other regulatory agency may require additional clinical trials or nonclinical studies to be completed before a new drug marketing application can be filed. NeuroBo is unable to predict the timing or amount of increased expenses, or when or if NeuroBo will be able to achieve or maintain profitability, and such expense could increase beyond its expectations if the FDA or any other regulatory agency requires such additional clinical trials or nonclinical studies as part of the application and approval process, or as a post-approval requirement if NeuroBo is successful at achieving regulatory approval. Even if NeuroBo is able to successfully complete the development and regulatory reviews described above, NeuroBo anticipates incurring significant costs associated with commercializing these products, if they are approved.

Even if NeuroBo is able to generate revenues from the sale of its product candidates, NeuroBo may not become profitable and may need to obtain additional funding to continue operations. If NeuroBo fails to become profitable or is unable to sustain profitability on a continuing basis, then NeuroBo may be unable to continue its operations at planned levels and be forced to reduce its operations. If NeuroBo does achieve profitability, NeuroBo may not be able to sustain or increase profitability on a quarterly or annual basis. NeuroBo's failure to become and remain profitable would

decrease the value of the company and could impair its ability to raise capital, maintain its discovery and preclinical development efforts, expand its business or continue its operations and may require it to raise additional capital that may dilute your ownership interest. A decline in the value of NeuroBo could also cause you to lose all or part of your investment.

**Risks Related to Development and Commercialization of NeuroBo's Product Candidates**

***NeuroBo depends heavily on the success of its lead product candidate, NB-01, which is in clinical development, and NeuroBo may not be able to successfully obtain regulatory or marketing approval for, or successfully commercialize, this or any other product candidate.***

NeuroBo's business depends heavily on the successful clinical development, regulatory approval and commercialization of NB-01. NeuroBo currently has no drug product for sale and may never be able to develop marketable drug products. NeuroBo plans to initiate a global Phase 3 pivotal trial of NeuroBo's lead product candidate, NB-01, in diabetic patients suffering from painful diabetic neuropathy (PDN) in the first quarter of 2020, and may be required to complete additional nonclinical studies and clinical trials before NeuroBo can seek regulatory approval for the treatment of this patient population. NeuroBo's other product candidate, NB-02, is still in the preclinical development stage. The clinical trials of NeuroBo's product candidates are, and the manufacturing and marketing of its product candidates will be, subject to extensive and rigorous review and regulation by government authorities in the United States and in other countries where NeuroBo intends to test and, if approved, market any product candidate. Before obtaining regulatory approvals for the commercial sale of any product candidate, NeuroBo must successfully meet a number of critical developmental milestones, including:

- developing dosages that will be well-tolerated, safe and effective;
- completing the development and scale-up to permit manufacture of its product candidates in commercial quantities and at acceptable costs;
- demonstrating through pivotal clinical trials that the product candidate is safe and effective in patients for the intended indication;
- establishing commercial manufacturing capabilities or making arrangements with third-party manufacturers; and
- obtaining and maintaining exclusive rights including patent and trade secret protection and non-patent exclusivity for its product candidates.

The time necessary to achieve these developmental milestones for any individual product candidate is long and uncertain, and NeuroBo may not successfully complete these milestones for NB-01, NB-02, or any other product candidates that NeuroBo may develop. NeuroBo has not yet completed development of any product candidate. Moreover, NB-01 is considered a "botanical drug product" by the FDA, which results in the drug candidate having unique features that must be taken into account during the drug development process. Botanical drug products may be heterogeneous in nature and may carry additional uncertainty about their active constituents in comparison to synthetic small-molecule drug products. Accordingly, the FDA may impose additional requirements on NeuroBo in order to confirm that the final formulation of NB-01 is able to demonstrate the necessary therapeutic consistency to support the marketing of a safe and effective commercial drug product. The complexities of developing botanical drug products may increase the time and costs associated with the development of NeuroBo's product candidates.

NeuroBo is continuing to test and develop its product candidates and may explore possible design or formulation changes to address safety, efficacy, manufacturing efficiency and performance issues to the extent any arise. NeuroBo may not be able to complete development of any product candidates

that demonstrate safety and efficacy and that will have a commercially reasonable treatment and storage period. If NeuroBo is unable to complete development of NB-01, NB-02, or any other product candidates that NeuroBo may develop, NeuroBo will not be able to commercialize and earn revenue from them.

***The regulatory review and approval processes of the FDA and comparable foreign regulatory authorities are lengthy, time-consuming and inherently unpredictable, and if NeuroBo is ultimately unable to obtain regulatory approval for its product candidates, including pursuant to the guidelines applicable to NB-01 and NB-02 as botanical drug products, its business will be substantially harmed.***

Of the large number of drugs in development in the United States, only a small percentage receive FDA regulatory approval and are commercialized in the United States. NeuroBo is not permitted to market NB-01, NB-02 or any other product candidate in the United States until NeuroBo receives approval of an NDA from the FDA, or in any foreign countries until NeuroBo receives the requisite approval from such countries or jurisdictions, such as the marketing authorization application, or MAA, in the European Union from the European Medicines Agency, or EMA. Prior to submitting an NDA to the FDA for approval of NB-01 for the treatment of painful diabetic neuropathy, NeuroBo will need to successfully complete the planned Phase 3 clinical trials of NB-01 in patients with painful diabetic neuropathy and potentially may need to undertake additional clinical trials and/or nonclinical studies. Successfully completing clinical trials and obtaining approval of an NDA is a complex, lengthy, expensive and uncertain process, and the FDA, or a comparable foreign regulatory authority, may delay, limit or deny approval of NB-01 for the treatment of painful diabetic neuropathy or other indications for many reasons, including, among others:

- disagreement with the design or implementation of its clinical trials;
- disagreement with the sufficiency of NeuroBo's clinical trials;
- failure to demonstrate the safety and efficacy of NB-01 or any other product candidate for its proposed indications;
- failure to demonstrate that any clinical and other benefits of NB-01 or any other product candidate outweigh its safety risks;
- a negative interpretation of the data from its nonclinical studies or clinical trials;
- deficiencies in the manufacturing or control processes or failure of third-party manufacturing facilities with which NeuroBo contracts for clinical and commercial supplies to comply with current Good Manufacturing Practice requirements, or cGMPs;
- deficiencies in the harvesting and processing of botanical raw materials under Good Agricultural and Collection Processes, or GACPs, or the inability to demonstrate that the final product is capable of being therapeutically consistent, as applicable to botanical drug products such as NB-01;
- insufficient data collected from clinical trials of NB-01 or changes in the approval requirements that render its nonclinical and clinical data insufficient to support the filing of an NDA or to obtain regulatory approval; or
- changes in clinical practice in or approved products available for the treatment of the target patient population that could have an impact on the indications that NeuroBo is pursuing for NB-01 or its other product candidates.

Further, NB-01 is derived from two plant species native to China, and as such is considered a botanical drug product. The FDA has specific requirements and technical standards for botanical drugs, with which NeuroBo will be obliged to comply in the clinical development of NB-01, including with

respect to the quality and therapeutic consistency standards for the product candidate that will be used in clinical trials. NeuroBo cannot assure you that it will be able to meet the standards to which it will be held for these purposes.

The FDA or a comparable foreign regulatory authority may also require more information, including additional nonclinical or clinical data to support approval, which may delay or prevent approval and NeuroBo's commercialization plans, or cause NeuroBo to abandon the development program. Even if NeuroBo obtains regulatory approval, its product candidates may be approved for fewer or more limited indications than NeuroBo requests, such approval may be contingent on the performance of costly post-marketing clinical trials, or NeuroBo may not be allowed to include the labeling claims necessary or desirable for the successful commercialization of such product candidate. For instance, it is possible that NB-01 could be approved for an indication but fail to be used for treating patients in that indication due to the availability of other available treatments or then-accepted clinical practice.

***NeuroBo depends on its license agreement with Dong-A ST to permit NeuroBo to use patents and patent applications relating to NB-01. Termination of these rights or the failure to comply with obligations under this agreement could materially harm NeuroBo's business and prevent it from developing or commercializing its product candidates.***

NeuroBo is a party to a license agreement with Dong-A ST under which NeuroBo was granted rights to patents and patent applications that are important to its business. NeuroBo relies on this license agreement in order to be able to use various proprietary technologies that are material to its business, including certain patents and patent applications that cover NB-01. NeuroBo's rights to use these patents and patent applications and employ the inventions claimed in these licensed patents are subject to the continuation of and its compliance with the terms of its license agreement.

NeuroBo's license agreement with Dong-A ST imposes upon NeuroBo various diligence, payment and other obligations, including the following:

- NeuroBo's obligation to pay Dong-A ST milestone payments in the aggregate amount of up to approximately $178 million, contingent upon the achievement by NeuroBo of certain regulatory and sales milestones with respect to licensed products; and
- NeuroBo's obligation to pay Dong-A ST tiered royalties based on any net sales of licensed products that NeuroBo commercializes under the agreement.

If NeuroBo fails to comply with any of its obligations under the Dong-A ST license agreement, or NeuroBo is subject to a bankruptcy, Dong-A ST may have the right to terminate the license agreement, in which event NeuroBo would not be able to market any product candidates covered by the license.

Disputes may arise under NeuroBo's license agreement with Dong-A ST regarding the intellectual property that is subject to such license agreement, including:

- the scope of rights granted under the applicable license agreement and other interpretation-related issues;
- whether and the extent to which NeuroBo's technology and processes infringe on intellectual property that is not subject to the license agreement;
- NeuroBo's diligence obligations with respect to the use of the licensed technology under the applicable license agreement to develop and commercialize products and technologies, including the level of effort and specific activities that will satisfy those diligence obligations; and
- the ownership of inventions and know-how resulting from the joint creation or use of intellectual property by NeuroBo and its partners.

If disputes over intellectual property that NeuroBo has licensed prevent or impair its ability to maintain any of its license agreements on acceptable terms, NeuroBo may be unable to successfully develop and commercialize the affected product candidates and technologies.

***The results of clinical trials may not support NeuroBo's product candidate claims.***

Even if NeuroBo's clinical trials are completed as planned, NeuroBo cannot be certain that their results will support the proposed product candidates, that the FDA or foreign government authorities will agree with NeuroBo's conclusions regarding such results, or that the FDA or foreign governmental authorities will not require additional clinical trials. Success in preclinical testing and early clinical trials does not ensure that later clinical trials will be successful, and the results of later clinical trials often do not replicate the results of prior clinical trials and preclinical testing. The clinical trial results may fail to demonstrate that NeuroBo's product candidates are safe for humans and effective for their intended indications. This failure could cause NeuroBo to abandon a product candidate and may delay development of other product candidates. Any delay in, or termination of, NeuroBo's clinical trials will delay or prevent the submission of any marketing applications and, ultimately, its ability to obtain approval and commercialize its product candidates and generate product revenues. Information about certain clinical trials, including the results of those trials, will be made public according to each country's clinical trial register policies (www.clinicaltrials.gov or EU's clinical trial database, EudraCT). Competitors may use this publicly available information to gain knowledge regarding the progress of development programs.

***NeuroBo's lead product candidate, NB-01, is only part way through the clinical trials NeuroBo anticipates needing to complete before NeuroBo may be able to submit an NDA to the FDA for this potential therapeutic product. Clinical drug development involves a lengthy and expensive process with an uncertain outcome, and results of early studies and trials may not be predictive of later trial results.***

Preclinical and other nonclinical testing and clinical trials are long, expensive and unpredictable processes that are difficult to design and implement, are subject to delays and are uncertain as to outcome. It may take several years to complete the nonclinical testing and clinical development necessary to obtain approval and commercialize a drug, and failure can occur at any stage of testing. Early and interim results of clinical trials do not necessarily predict final results. In particular, the small number of subjects and patients in NeuroBo's early clinical trials may make the results of these clinical trials less predictive of the outcome of later larger clinical trials. The design of a clinical trial may be able to determine whether its results will support approval of a product, and flaws in the design of a clinical trial may not become apparent until the clinical trial is well advanced or completed. There is no assurance that NeuroBo will be able to design and complete a clinical trial to support marketing approval. Moreover, nonclinical and clinical data are often susceptible to multiple interpretations and analyses. A number of companies in the pharmaceutical and biotechnology industries have experienced significant setbacks in advanced clinical trials, even after promising results in earlier trials.

***Delays in NeuroBo's clinical trials may lead to a delay in the submission of marketing approval applications and jeopardize its ability to potentially receive approvals and generate revenues from the sale of its products.***

NeuroBo may experience delays in its current or future clinical trials, including its Phase 3 trials of NB-01 for the treatment of diabetic neuropathy and clinical trials of NB-02, which is in development for the symptomatic and disease modifying treatment of neurodegenerative diseases, including Alzheimer's disease and tauopathies. NeuroBo does not know whether planned clinical trials will begin or enroll subjects on time, need to be redesigned or be completed on schedule, if at all. Clinical trials may be delayed, suspended or terminated for a variety of reasons, such as:

- delay or failure in reaching agreement with the FDA or a comparable foreign regulatory authority on a trial design that NeuroBo is able to execute;

- delay or failure in obtaining authorization to commence a trial or inability to comply with conditions imposed by a regulatory authority regarding the scope or design of a clinical trial;
- inability, delay or failure in identifying and maintaining a sufficient number of trial sites, many of which may already be engaged in competing clinical trial programs;
- issues with the manufacture of drug substance for use in clinical trials;
- delay or failure in recruiting and enrolling suitable subjects to participate in a trial;
- delay or failure in having subjects complete a trial or return for post-treatment follow-up;
- clinical sites and investigators deviating from trial protocol, failing to conduct the trial in accordance with regulatory requirements, or dropping out of a trial;
- delay or failure in reaching agreement on acceptable terms with prospective clinical research organizations, or CROs, and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- delay or failure in obtaining institutional review board, or IRB, approval to conduct a clinical trial at each site;
- delays resulting from negative or equivocal findings of the Data Safety Monitoring Board, or DSMB, if any;
- ambiguous or negative results;
- decision by the FDA, a comparable foreign regulatory authority, or recommendation by a DSMB to suspend or terminate clinical trials at any time for safety issues or for any other reason;
- lack of adequate funding to continue the product development program; or
- changes in governmental regulations or requirements.

Any delays in completing NeuroBo's clinical trials will increase its costs, slow down its product candidate development and approval process and jeopardize its ability to commence product sales and generate revenues. Any of these occurrences may significantly harm NeuroBo's business, financial condition and prospects. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of NeuroBo's product candidates.

***The development of NeuroBo's product candidates is dependent upon securing sufficient quantities of Dioscorea Rhizome and Dioscoreae Nipponicae Rhizoma, which are two plant species native to China.***

The therapeutic components of NeuroBo's product candidate, NB-01, *Dioscorea Rhizome* and *Dioscoreae Nipponicae Rhizoma*, are cultivated for NeuroBo in China and Korea. NeuroBo currently secures these components exclusively from Dong-A ST. NeuroBo's current supply agreement with Dong-A ST expires on September 28, 2023, unless extended by mutual agreement of NeuroBo and Dong-A ST. There can be no assurances that *Dioscorea Rhizome* and *Dioscoreae Nipponicae Rhizoma* will continue to grow in sufficient quantities to meet commercial supply requirements or that the countries from which NeuroBo can secure *Dioscorea Rhizome* and *Dioscoreae Nipponicae Rhizoma* will continue to allow the exportation of these components. In the event NeuroBo is no longer able to obtain these products from Dong-A ST, or in sufficient quantities, NeuroBo may not be able to produce its proposed products and its business will be adversely affected.

Further, because *Dioscorea Rhizome* and *Dioscoreae Nipponicae Rhizoma* are imported from China and Korea, any trade policies or rules that impose conditions or restrictions on the importation of

natural products from those regions may restrict or prevent the timely delivery of these products to NeuroBo, which would adversely affect its business.

***NeuroBo's business may be negatively affected by weather conditions and the availability of natural resources, as well as by climate change.***

In recent years, extreme weather events and changing weather patterns such as storms, flooding, drought, and temperature changes, appear to have become more common. The production of *Dioscorea Rhizome* and *Dioscoreae Nipponicae Rhizoma* depends on the availability of natural resources, including sufficient rainfall. NeuroBo's exclusive supplier of these components, Dong-A ST, could be adversely affected if it experiences a shortage of fresh water due to droughts or other weather conditions. As a result of such events, NeuroBo could experience shortages of the necessary components of its products, which could have a material adverse effect on its business, financial condition and results of operations.

***NeuroBo's research and development efforts are focused on the treatment of neurodegenerative conditions and diseases, a field that to date has seen limited success in drug development. Further, NeuroBo's product candidates are based on new approaches and novel technology, which makes it difficult to predict the time and cost of product candidate development and subsequently obtaining regulatory approval.***

NeuroBo has focused its research and development efforts on addressing neurodegenerative conditions and diseases. Collectively, efforts by biopharmaceutical companies in the field of neurodegenerative conditions and diseases have seen limited success in drug development to date. There are few effective therapeutic options available for patients with Alzheimer's disease and other neurodegenerative diseases and conditions. NeuroBo's future success is highly dependent on the successful development of its technology and its product candidates for treating neurodegenerative conditions and diseases. Developing and, if approved, commercializing NeuroBo's product candidates for treatment of neurodegenerative diseases subjects it to a number of challenges, including obtaining regulatory approval from the FDA and other regulatory authorities who have only a limited set of precedents on which to rely.

NeuroBo cannot be sure that its approach will yield satisfactory therapeutic products that are safe and effective, scalable, or profitable. Moreover, public perception of drug safety issues, including adoption of new therapeutics or novel approaches to treatment, may adversely influence the willingness of subjects to participate in clinical trials, or if approved, of physicians to subscribe to novel treatments.

***NeuroBo may fail to enroll a sufficient number of patients in its clinical trials in a timely manner, which could delay or prevent clinical trials of its product candidates.***

Identifying and qualifying patients to participate in clinical trials of NeuroBo's product candidates is critical to its success. The timing of NeuroBo's clinical trials depends on the rate at which NeuroBo can recruit and enroll patients in testing its product candidates. The timing of NeuroBo's clinical trials depends in part on the speed at which NeuroBo can recruit patients to participate in testing NB-01 and any other current or future product candidates that NeuroBo may develop, as well as successful completion of any required follow-up visits with trial subjects. If NeuroBo cannot identify patients to participate in its clinical trials or if patients are unwilling to participate in its clinical trials for any reason, including if patients choose to enroll in competitive clinical trials for similar patient populations, the timeline for recruiting patients, conducting studies and obtaining regulatory approval of NB-01 and any other current or future product candidates that NeuroBo may develop may be delayed. These delays could result in increased costs, delays in advancing NeuroBo's current or future product candidates, including NB-01 and NB-02, delays in testing the effectiveness of its product candidates or termination of the clinical trials altogether.

NeuroBo may not be able to identify, recruit and enroll a sufficient number of patients, or those with required or desired characteristics to achieve diversity in a trial, to complete its clinical trials in a timely manner. The eligibility criteria of NeuroBo's clinical trials will further limit the pool of available trial participants.

Patient enrollment, a significant factor in the duration of clinical trials, is also affected by many factors, including:

- the severity of the disease under investigation;
- the size and nature of the patient population;
- the eligibility criteria for the clinical trial in question;
- the design of the clinical trial;
- the inability to obtain and maintain patient consents;
- the risk that enrolled subjects will drop out before completion;
- clinicians' and patients' perceptions as to the potential advantages of the drug being studied in relation to other available therapies, including any new drug that may be approved or for which clinical trials are initiated for the indications that NeuroBo is investigating;
- NeuroBo's CROs and its trial sites' efforts to facilitate timely screening and enrollment in clinical trials;
- patient referral practices of physicians; and
- NeuroBo's ability to monitor patients adequately during and after treatment.

NeuroBo has made certain assumptions about the rate at which NeuroBo can enroll patients in its clinical trials. To the extent that NeuroBo does not meet this enrollment target, NeuroBo's projected timeline for development of NeuroBo's product candidates may be slowed. NeuroBo relies on third-party CROs and clinical trial sites to ensure the proper and timely conduct of its clinical trials, and while NeuroBo will have agreements governing their activities, NeuroBo has limited control over the actual performance of those third-party research and development partners.

If NeuroBo experiences difficulty enrolling a sufficient number of patients to conduct its clinical trials as planned, it may be forced to delay, limit or terminate ongoing or planned clinical trials of its product candidates, which would delay its ability to obtain approvals and generate product revenues from any of these product candidates.

***If NeuroBo experiences any of a number of possible unforeseen events in connection with its clinical trials, potential marketing approval or commercialization of its product candidates, or entry into licensing, collaboration or similar arrangements, could be delayed or prevented.***

NeuroBo may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent its ability to receive marketing approval or commercialize its product candidates, including:

- clinical trials of its product candidates may produce negative or inconclusive results, and NeuroBo may decide, or regulators may require it, to conduct additional clinical trials or abandon product development programs;
- the number of patients required for clinical trials of its product candidates may be larger than NeuroBo anticipates, enrollment in these clinical trials may be slower than NeuroBo anticipates or participants may drop out of these clinical trials at a higher rate than NeuroBo anticipates;

- NeuroBo may be unable to recruit and enroll a sufficient number of patients in its clinical trials to ensure adequate statistical power to detect any statistically significant treatment effects;
- NeuroBo's third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to NeuroBo in a timely manner, or at all;
- regulators, IRBs or independent ethics committees may not authorize NeuroBo or its investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- NeuroBo may experience delays in reaching, or NeuroBo may fail to reach, agreement on acceptable clinical trial contracts or clinical trial protocols with prospective trial sites;
- NeuroBo may have to suspend or terminate clinical trials of its product candidates for various reasons, including a finding that the participants are being exposed to unacceptable health risks or undesirable side effects;
- regulators, IRBs or independent ethics committees may require that NeuroBo or its investigators suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements or a finding that the participants are being exposed to unacceptable health risks;
- the cost of clinical trials of NeuroBo's product candidates may be greater than NeuroBo anticipates;
- the supply or quality of NeuroBo's product candidates or other materials necessary to conduct clinical trials of its product candidates, particularly of *Dioscorea Rhizome* and *Dioscoreae Nipponicae Rhizoma*, may be insufficient or inadequate; and
- NeuroBo's product candidates may have undesirable side effects or other unexpected characteristics, causing NeuroBo or its investigators, regulators, IRBs or independent ethics committees to suspend or terminate the clinical trials.

NeuroBo's product development costs will increase if NeuroBo experiences delays in testing or marketing approvals. NeuroBo does not know whether any preclinical tests or clinical trials will begin as planned, will need to be redesigned or will be completed on schedule, or at all. Significant preclinical study or clinical trial delays also could shorten any periods during which NeuroBo may have the exclusive right to commercialize its product candidates, if they are approved, or allow its competitors to bring products to market before NeuroBo does and impair NeuroBo's ability to successfully commercialize its product candidates, which may harm its business and results of operations.

***NeuroBo may expend its limited resources to pursue a particular product candidate or indication and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.***

Because NeuroBo has limited financial and managerial resources, NeuroBo focuses on specific product candidates. Currently, NeuroBo is focusing its resources predominantly on NB-01 for the treatment of painful diabetic neuropathy and NB-02, which is in development for the symptomatic and disease modifying treatment of neurodegenerative diseases, including Alzheimer's disease and tauopathies. As a result, NeuroBo may forego or delay pursuit of opportunities with other product candidates or for other indications that have or that could later prove to have greater commercial potential. NeuroBo's resource allocation decisions may cause it to fail to capitalize on viable commercial products or alternate and/or profitable market opportunities. NeuroBo's spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products. If NeuroBo does not accurately evaluate the commercial potential or target market for a particular product candidate, NeuroBo may relinquish

valuable rights to that product candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for NeuroBo to retain sole development and commercialization rights to such product candidate.

**Risks Related to the Marketing and Commercialization of NeuroBo's Product Candidates**

***If NeuroBo is unable to establish sales and marketing capabilities to market and sell its product candidates, if they are approved for such marketing, NeuroBo may be unable to generate any revenue.***

Even if NeuroBo is ultimately successful in obtaining regulatory approval of NB-01 for the treatment of painful diabetic neuropathy, in order to market and sell NB-01 and its other product candidates in development, NeuroBo currently intends to build and develop its own sales, marketing and distribution operations. Although NeuroBo's management team has previous experience with such efforts, there can be no assurance that NeuroBo will be successful in building these operations. The establishment and development of NeuroBo's own commercial sales and marketing teams to discuss any products NeuroBo may develop will be expensive and time-consuming and could delay any product launch.

If NeuroBo is unable to establish adequate sales, marketing and distribution capabilities, NeuroBo may not be able to generate product revenue and may not become profitable. NeuroBo will also be competing with many companies that currently have extensive and well-funded sales and marketing operations. If any of NeuroBo's product candidates are approved, NeuroBo may be unable to compete successfully against these more established companies.

***NeuroBo's commercial success depends upon attaining significant market acceptance of its product candidates, if approved, among hospitals, physicians, patients and healthcare payors.***

Even if NeuroBo obtains regulatory approval for any of its product candidates that NeuroBo may develop or acquire in the future, the product may not gain market acceptance among hospitals, physicians, health care payors, patients and the medical community. Market acceptance of any of NeuroBo's product candidates for which NeuroBo receives approval depends on a number of factors, including:

- the efficacy and safety of such product candidates as demonstrated in clinical trials;
- the clinical indications for which the product candidate is approved;
- acceptance by major operators of hospitals, physicians and patients of the product candidate as a safe and effective treatment, particularly the ability of NB-01 and NeuroBo's other product candidates to establish themselves as a new standard of care in the treatment paradigm for the indications that NeuroBo is pursuing;
- the potential and perceived advantages of NeuroBo's product candidates over alternative treatments as compared to the relative costs of the product candidates and alternative treatments;
- the willingness of physicians to prescribe, and patients to take, a product candidate that is based on a botanical source;
- the prevalence and severity of any side effects with respect to NeuroBo's product candidates, including NB-01, and any elements that may be imposed by the FDA under a REMS program that could discourage market uptake of the products;
- NeuroBo's ability to offer any approved products for sale at competitive prices;
- the timing of market introduction of NeuroBo's products as well as competitive products;

- the availability of adequate reimbursement and pricing for any approved products by third party payors and government authorities;
- relative convenience and ease of administration; and
- the effectiveness of NeuroBo's sales and marketing efforts and those of its potential future collaborators.

There may be delays in getting NeuroBo's product candidates, if approved, on hospital or insurance formularies or limitations on coverages that may be available in the early stages of commercialization for newly approved drugs. If any of NeuroBo's product candidates are approved but fail to achieve market acceptance among hospitals, physicians, patients or health care payors, NeuroBo will not be able to generate significant revenues, which would have a material adverse effect on its business, prospects, financial condition and results of operations.

***Product candidates may cause undesirable side effects that could delay or prevent their marketing approval, limit the commercial profile of an approved label, or result in significant negative consequences following marketing approval, if any, including marketing withdrawal.***

Undesirable side effects caused by any of NeuroBo's product candidates that NeuroBo may develop or acquire could cause NeuroBo or the FDA or other regulatory authorities to interrupt, delay or halt NeuroBo's clinical trials and could result in more restrictive labels or the delay or denial of marketing approval by the FDA or other regulatory authorities of such product candidates. Results of NeuroBo's clinical trials could reveal a high and unacceptable severity and prevalence of these or other side effects. In such an event, NeuroBo's trials could be suspended or terminated and the FDA or comparable foreign regulatory authorities could order NeuroBo to cease further development of or deny approval of its product candidates for any or all targeted indications. In addition, any drug-related side effects could affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. Any of these occurrences may harm NeuroBo's business, financial condition and prospects significantly.

Further, clinical trials by their nature utilize a sample of the potential patient population. With a limited number of patients, rare and severe side effects of NeuroBo's product candidates may only be uncovered with a significantly larger number of patients exposed to the product candidate. If NeuroBo's product candidates receive marketing approval and NeuroBo or others identify undesirable side effects caused by such product candidates (or any other similar drugs) after such approval, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw or limit their approval of such product candidates;
- regulatory authorities may require the addition of labeling statements, such as a "boxed" warning or a contraindication;
- NeuroBo may be required to change the way such product candidates are distributed or administered, conduct additional clinical trials or change the labeling of the product candidates;
- regulatory authorities may require a Risk Evaluation and Mitigation Strategy (REMS) plan to mitigate risks, which could include medication guides to be distributed to patients, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools;
- NeuroBo may be subject to regulatory investigations and government enforcement actions;
- NeuroBo may decide to remove such product candidates from the marketplace after they are approved;

- NeuroBo could be sued and held liable for injury caused to individuals exposed to or taking its product candidates; and

- NeuroBo's reputation may suffer.

NeuroBo believes that any of these events could prevent it from achieving or maintaining market acceptance of the affected product candidates and could substantially increase the costs of commercializing its product candidates, if approved, and significantly impact its ability to successfully commercialize its product candidates and generate revenues.

***NeuroBo's relationships with customers and third-party payors will be subject to applicable anti-kickback, fraud and abuse and other healthcare laws and regulations, which could expose NeuroBo to criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings.***

Although NeuroBo does not currently have any drugs on the market, once NeuroBo begins commercializing its product candidates, if approved, NeuroBo will be subject to additional healthcare statutory and regulatory requirements and enforcement by federal government and the states and foreign governments in the jurisdictions in which NeuroBo conducts its business. Healthcare providers, physicians and third-party payors will play a primary role in the recommendation and prescription of any product candidates for which NeuroBo obtains marketing approval. NeuroBo's future arrangements with third-party payors and customers may expose NeuroBo to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which NeuroBo markets, sells and distributes any products for which NeuroBo obtains marketing approval. Restrictions under applicable federal and state healthcare laws and regulations include the following:

- the federal Anti-Kickback Statute prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or paying remuneration, directly or indirectly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made under a federal healthcare program such as Medicare and Medicaid; a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;

- the federal false claims laws impose criminal and civil penalties, including civil whistleblower or qui tam actions, against individuals or entities for knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government; in addition, the government may assert that a claim including items and services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act;

- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, imposes criminal and civil liability for executing a scheme to defraud any healthcare benefit program, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement in connection with the delivery of or payment for healthcare benefits, items or services; similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;

- the federal physician payment transparency requirements, sometimes referred to as the "Sunshine Act," requires manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children's Health Insurance Program to report annually detailed information related to payments and other transfers of value to physicians,

teaching hospitals, and certain advanced non-physician healthcare practitioners and the ownership and investment interests of physicians and their immediate family members in such manufacturers;

- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act and its implementing regulations, which also imposes obligations on certain covered entity healthcare providers, health plans, and healthcare clearinghouses as well as their business associates that perform certain services involving the use or disclosure of individually identifiable health information, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information;

- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers;

- some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government and may require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; and

- state and foreign laws also govern the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Efforts to ensure that NeuroBo's business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that NeuroBo's business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If NeuroBo's operations are found to be in violation of any of these laws or any other governmental regulations that may apply to it, NeuroBo may be subject to significant civil, criminal and administrative penalties, damages, fines, imprisonment, exclusion of products from government funded healthcare programs, such as Medicare and Medicaid, and the curtailment or restructuring of NeuroBo's operations. If any of the physicians or other healthcare providers or entities with whom NeuroBo expects to do business is found to be not in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs.

***Current and future legislation may increase the difficulty and cost for NeuroBo to obtain marketing approval of and commercialize NeuroBo's product candidates and affect the prices NeuroBo may obtain.***

In the United States and some foreign jurisdictions, there have been a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of NeuroBo's product candidates, restrict post-approval activities and affect its ability to profitably sell any product candidates for which NeuroBo obtains marketing approval.

In the United States, Medicare covers certain drug purchases by the elderly and eligible disabled people and introduced a reimbursement methodology based on average sales prices for physician-administered drugs. In addition, Medicare may limit the number of drugs that will be covered in any therapeutic class. Ongoing cost reduction initiatives and future laws could decrease the coverage and price that NeuroBo will receive for any approved products. While Medicare beneficiaries are limited to most elderly and certain disabled individuals, private payors often follow Medicare coverage policy and payment limitations in setting their own payment rates.

In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively the ACA, became law. The ACA is a sweeping law intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add new transparency requirements for the healthcare and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms. Among the provisions of the ACA of importance to NeuroBo's product candidates are the following:

- an annual, nondeductible fee on any entity that manufactures or imports specified branded prescription drugs and biologic products;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program;
- expansion of healthcare fraud and abuse laws, including the False Claims Act and the Anti-Kickback Statute, new government investigative powers, and enhanced penalties for noncompliance;
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts off negotiated prices;
- extension of manufacturers' Medicaid rebate liability;
- expansion of eligibility criteria for Medicaid programs;
- expansion of the entities eligible for discounts under the Public Health Service Act's pharmaceutical pricing program;
- new requirements to report financial arrangements with physicians and teaching hospitals (i.e., the Federal Physician Payment Sunshine Act, which has since been expanded to cover additional specified healthcare providers);
- a new requirement to annually report drug samples that manufacturers and distributors provide to physicians; and
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

NeuroBo expects that the ACA, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that NeuroBo will receive for any approved product. Any reduction in payments from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent NeuroBo from being able to generate revenue, attain profitability, or commercialize its products. The ACA also continues to be the subject of significant political controversy and legal challenges, making its continued implementation uncertain.

Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical products. NeuroBo cannot be sure whether additional legislative changes will be enacted, or whether FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals, if any, of NeuroBo's product candidates may be. In addition, increased scrutiny by the U.S. Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject NeuroBo to more stringent product labeling and post-marketing conditions and other requirements.

***If, in the future, NeuroBo is unable to establish sales and marketing capabilities or to selectively enter into agreements with third parties to sell and market its product candidates, NeuroBo may not be successful in commercializing its product candidates if and when they are approved.***

NeuroBo does not have a sales or marketing infrastructure and has no experience in the sale, marketing or distribution of pharmaceutical products. To achieve commercial success for any approved product for which NeuroBo retains sales and marketing responsibilities, NeuroBo must either develop a sales and marketing organization or outsource these functions to other third parties. In the future, NeuroBo may choose to build a focused sales and marketing infrastructure to sell some of its product candidates if and when they are approved.

There are risks involved both with establishing NeuroBo's own sales and marketing capabilities and with entering into arrangements with third parties to perform these services. For example, recruiting and training a sales force is expensive and time consuming and could delay any product launch. If the commercial launch of a product candidate for which NeuroBo recruits a sales force and establishes marketing capabilities is delayed or does not occur for any reason, NeuroBo would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly, and NeuroBo's investment would be lost if NeuroBo cannot retain or reposition its sales and marketing personnel.

Factors that may inhibit NeuroBo's efforts to commercialize its product candidates on its own include:

- NeuroBo's inability to recruit and retain adequate numbers of effective sales and marketing personnel;
- the inability of sales personnel to obtain access to physicians or persuade adequate numbers of physicians to prescribe any future products; and
- unforeseen costs and expenses associated with creating an independent sales and marketing organization.

If NeuroBo enters into arrangements with third parties to perform sales, marketing and distribution services, NeuroBo's product revenue or the profitability of these product revenue to NeuroBo may be lower than if NeuroBo were to market and sell any products that NeuroBo develops itself. In addition, NeuroBo may not be successful in entering into arrangements with third parties to sell and market its product candidates or may be unable to do so on terms that are favorable to NeuroBo. NeuroBo may have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market NeuroBo's products effectively. If NeuroBo does not establish sales and marketing capabilities successfully, either on its own or in collaboration with third parties, NeuroBo will not be successful in commercializing its product candidates.

***NeuroBo faces substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than NeuroBo does.***

The development and commercialization of new drug products is highly competitive. NeuroBo faces competition with respect to its current product candidates, and will face competition with respect to any product candidates that NeuroBo may seek to develop or commercialize in the future, from major pharmaceutical companies, specialty pharmaceutical companies and biotechnology companies worldwide. There are a number of large pharmaceutical and biotechnology companies that currently market and sell products or are pursuing the development of products for the treatment of painful diabetic neuropathy and for the symptomatic and disease modifying treatment of neurodegenerative diseases, including Alzheimer's disease and tauopathies. Some of these competitive products and therapies are based on scientific approaches that are the same as or similar to NeuroBo's approach and others are based on entirely different approaches. Potential competitors also include academic institutions, government agencies and other public and private research organizations that conduct

research, seek patent protection and establish collaborative arrangements for research, development, manufacturing and commercialization.

There are a number of large pharmaceutical and biotechnology companies that are currently pursuing the development of products for the treatment of the neurodegenerative disease indications for which NeuroBo has research programs, including painful diabetic neuropathy and Alzheimer's disease. Companies that NeuroBo is aware of are developing therapeutics in the neurodegenerative disease area include large companies with significant financial resources, such as AbbVie, AstraZeneca, Biogen, Celgene, Eli Lilly, GlaxoSmithKline, Johnson & Johnson, Novartis, Roche, Sanofi and Takeda. In addition to competition from other companies targeting neurodegenerative indications, any products NeuroBo may develop may also face competition from other types of therapies, such as gene-editing therapies.

NeuroBo's lead product candidate, NB-01, is in clinical development for the treatment of painful diabetic neuropathy. NeuroBo is also developing NB-02 for the symptomatic and disease modifying treatment of neurodegenerative diseases, including Alzheimer's disease and tauopathies. For painful diabetic neuropathy, there are no products currently marketed for disease modification, although there are products available to treat painful diabetic neuropathy. For Alzheimer's disease, current symptomatic treatments have limited effectiveness and no disease-modifying therapy is currently available. Some of the currently approved drug therapies are branded and subject to patent protection, and others are available on a generic basis. Many of these approved drugs are well-established therapies and are widely accepted by physicians, patients and third-party payors. Insurers and other third-party payors may also encourage the use of generic products. NeuroBo expects that if its product candidates are approved, they will be priced at a significant premium over competitive generic products. This may make it difficult for NeuroBo to achieve its business strategy of using its product candidates in combination with existing therapies or replacing existing therapies with its product candidates.

NeuroBo's competitors may develop products that are more effective, have a better safety profile, are more convenient or less costly than any that NeuroBo is developing or that would render NeuroBo's product candidates obsolete or non-competitive. NeuroBo's competitors may also obtain marketing approval from the FDA or other regulatory authorities for their products sooner than NeuroBo may obtain approval for its product candidates, which could result in its competitors establishing a strong market position before NeuroBo is able to enter the market.

Many of NeuroBo's competitors have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved products than NeuroBo does. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of NeuroBo's competitors. Smaller and other early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These third parties may compete with NeuroBo in recruiting and retaining qualified scientific and management personnel, establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, NeuroBo's programs.

***NeuroBo intends to market NB-01 and its other product candidates outside of the United States, and if NeuroBo does, NeuroBo will be subject to the risks of doing business outside of the United States.***

Because NeuroBo intends to market NB-01 and other product candidates, if approved, outside of the United States, NeuroBo's business is subject to risks associated with doing business outside of the

United States. Accordingly, NeuroBo's business and financial results in the future could be adversely affected due to a variety of factors, including:

- failure to develop an international sales, marketing and distribution system for NeuroBo's products;
- changes in a specific country's or region's political and cultural climate or economic condition;
- unexpected changes in foreign laws and regulatory requirements;
- difficulty of effective enforcement of contractual provisions in local jurisdictions;
- inadequate intellectual property protection in foreign countries;
- inadequate data protection against unfair commercial use;
- trade-protection measures, import or export licensing requirements such as Export Administration Regulations promulgated by the United States Department of Commerce and fines, penalties or suspension or revocation of export privileges;
- the effects of applicable foreign tax structures and potentially adverse tax consequences; and
- significant adverse changes in foreign currency exchange rates.

***Even if NeuroBo is able to commercialize NB-01 or any other product candidate that NeuroBo develops, the product may become subject to unfavorable pricing regulations, third-party reimbursement practices or healthcare reform initiatives, which would harm its business.***

The regulations that govern marketing approvals, pricing, coverage and reimbursement for new drug products vary widely from country to country. Current and future legislation may significantly change the approval requirements in ways that could involve additional costs and cause delays in obtaining approvals. Some countries require approval of the sale price of a drug before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted and, in some markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, NeuroBo might obtain marketing approval for a product in a particular country, but then be subject to price regulations that delay its commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenues NeuroBo is able to generate from the sale of the product in that country. Adverse pricing limitations may hinder NeuroBo's ability to recoup its investment in one or more product candidates, even if its product candidates obtain marketing approval.

NeuroBo's ability to commercialize NB-01 or any other product candidate successfully also will depend in part on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers and other organizations. Government authorities and other third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. A primary trend in the U.S. and E.U. healthcare industries and elsewhere is cost containment. Government authorities and other third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. NeuroBo cannot be sure that coverage and reimbursement will be available for NB-01 or any other product that NeuroBo commercializes and, if coverage and reimbursement is available, the level of reimbursement. Reimbursement may impact the demand for, or the price of, any product candidate for which NeuroBo obtains marketing approval. Obtaining and maintaining adequate reimbursement for NB-01 may be particularly difficult because of the higher prices typically associated with drugs directed at smaller

populations of patients. In addition, third-party payors are likely to impose strict requirements for reimbursement of a higher priced drug, and any launch of a competitive product is likely to create downward pressure on the price initially charged. If reimbursement is not available or is available only to a limited degree, NeuroBo may not be able to successfully commercialize any product candidate for which NeuroBo obtains marketing approval.

There may be significant delays in obtaining coverage and reimbursement for newly approved drugs, and coverage may be more limited than the purposes for which the drug is approved by the applicable regulatory authority. Moreover, eligibility for coverage and reimbursement does not imply that any drug will be paid for in all cases or at a rate that covers NeuroBo's costs, including research, development, intellectual property, manufacturing, sale and distribution expenses. Interim reimbursement levels for new drugs, if applicable, may also not be sufficient to cover NeuroBo's costs and may not be made permanent. Reimbursement rates may vary according to the use of the drug and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost drugs, and may be incorporated into existing payments for other services. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. In the United States, third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. In the European Union, reference pricing systems and other measures may lead to cost containment and reduced prices. NeuroBo's inability to promptly obtain coverage and adequate reimbursement rates from both government-funded and private payors for any approved products that NeuroBo develops could have a material adverse effect on its operating results, its ability to raise capital needed to commercialize products and its overall financial condition.

***Governments outside the United States tend to impose strict price controls, which may adversely affect NeuroBo's revenues, if any.***

In some countries, particularly the countries of the European Union, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a product. To obtain reimbursement or pricing approval in some countries, NeuroBo may be required to conduct a clinical trial that compares the cost-effectiveness of its product candidate to other available therapies. If reimbursement of NeuroBo's products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, NeuroBo's business could be harmed, possibly materially.

***Product liability lawsuits against NeuroBo could cause NeuroBo to incur substantial liabilities and could limit the commercialization of any product candidates NeuroBo may develop.***

NeuroBo faces an inherent risk of product liability exposure related to the testing of its product candidates in human clinical trials and will face an even greater risk with respect to commercial sales of any products that NeuroBo may develop. If NeuroBo cannot successfully defend itself against claims that its product candidates or products caused injuries, NeuroBo could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- reduced resources of NeuroBo's management to pursue its business strategy;
- decreased demand for any products that NeuroBo may develop;
- injury to NeuroBo's reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- significant costs to defend any related litigation;

- substantial monetary awards to trial participants or patients;
- loss of revenue;
- increased insurance costs; and
- the inability to commercialize any products that NeuroBo may develop.

Although NeuroBo maintains clinical trial insurance coverage, it may not be adequate to cover all liabilities that NeuroBo may incur. NeuroBo anticipates that NeuroBo will need to increase its insurance coverage as NeuroBo continues clinical trials or begins commercialization of any products. Insurance coverage is increasingly expensive. NeuroBo may not be able to obtain or maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

**Risks Related to NeuroBo's Dependence on Third Parties**

***NeuroBo has no experience manufacturing its product candidates on a large clinical or commercial scale and has no manufacturing facility. NeuroBo is currently dependent on Dong-A ST as its sole third party manufacturer for the manufacture of NB-01, and if NeuroBo experiences issues with the manufacturing of NB-01, this could harm its results of operations.***

NeuroBo does not own or operate facilities for the manufacture of NB-01 or any other product candidate. NeuroBo currently has no plans to build its own clinical or commercial scale manufacturing capabilities. NeuroBo currently works exclusively with Dong-A ST as the sole manufacturer for the production of NB-01. To meet NeuroBo's projected needs for clinical supplies to support its activities through regulatory approval and commercial manufacturing, Dong-A ST will need to provide sufficient scale of production for these projected needs. If any issues arise in the manufacturing and NeuroBo is unable to arrange for alternative third-party manufacturing sources, NeuroBo is unable to find an alternative third party capable of reproducing the existing manufacturing method or NeuroBo is unable to do so on commercially reasonable terms or in a timely manner, NeuroBo may not be able to complete development of its product candidates, or market or distribute them. In addition, under FDA's guidelines for botanical drug products, the harvesting and processing of the botanical raw materials that are the basis of NeuroBo's product candidates must be done in compliance with Good Agricultural and Collection Processes, or GACPs. NeuroBo is relying on Dong-A ST and other third parties to ensure that their practices comply with applicable GACPs.

Reliance on third-party manufacturers entails risks to which NeuroBo would not be subject if NeuroBo manufactured its product candidates itself, including reliance on the third party for regulatory compliance and quality assurance, the possibility of breach of the manufacturing agreement by the third party because of factors beyond its control (including a failure to synthesize and manufacture its product candidates or any products that NeuroBo may eventually commercialize in accordance with its specifications), and the possibility of termination or nonrenewal of the agreement by the third party, based on its own business priorities, at a time that is costly or damaging to NeuroBo. In addition, the FDA and other regulatory authorities require that NeuroBo's product candidates and any products that NeuroBo may eventually commercialize be manufactured according to cGMP and similar foreign standards. Drug manufacturers and other entities involved in the manufacture and distribution of approved drugs are required to register their establishments with the FDA and some state agencies, and are subject to periodic unannounced inspections for compliance with cGMP requirements. Changes to the manufacturing process are strictly regulated and often require prior FDA or other regulatory authority approval before being implemented. FDA requirements also require investigation and correction of any deviations from cGMP and impose reporting and documentation requirements upon NeuroBo and any third-party manufacturers that NeuroBo may decide to use. Accordingly, the manufacturers must continue to expend time, money and effort in the areas of production and quality control to maintain cGMP compliance. Any failure by NeuroBo's third-party manufacturer to comply

with cGMP or failure to scale up manufacturing processes, including any failure to deliver sufficient quantities of product candidates or products if they are approved in a timely manner, could lead to a delay in, or failure to obtain, regulatory approval of any of NeuroBo's product candidates. In addition, such failure could be the basis for the FDA to issue a warning letter, withdraw approvals for product candidates previously granted to NeuroBo, or take other regulatory or legal action, including recall or seizure, total or partial suspension of production, suspension of ongoing clinical trials, refusal to approve pending applications or supplemental applications, detention of product, refusal to permit the import or export of products, injunction, or imposing civil and criminal penalties.

NeuroBo's current manufacturer and any future manufacturers may not be able to manufacture NeuroBo's product candidates at a cost or in quantities or in a timely manner necessary to make commercially successful products. If NeuroBo successfully commercializes any of its product candidates, NeuroBo may be required to establish large-scale commercial manufacturing capabilities. In addition, as NeuroBo's drug development pipeline increases and matures, NeuroBo will have a greater need for clinical study and commercial manufacturing capacity. NeuroBo has no experience manufacturing pharmaceutical products on a commercial scale and some of these manufacturers will need to increase their scale of production to meet its projected needs for commercial manufacturing, the satisfaction of which may not be met on a timely basis.

***NeuroBo relies on third-party CROs to conduct its preclinical studies and clinical trials. If these CROs do not successfully carry out their contractual duties or meet expected deadlines, NeuroBo may not be able to obtain regulatory approval for or commercialize its product candidates and its business could be substantially harmed.***

NeuroBo has relied upon and plans to continue to rely upon third-party contract research organizations, or CROs, and clinical data management organizations to monitor and manage data for its ongoing preclinical and clinical programs. Although NeuroBo controls only certain aspects of their activities, NeuroBo is responsible for ensuring that each of its studies is conducted in accordance with the applicable protocol and legal, regulatory and scientific standards, and its reliance on the CROs does not relieve NeuroBo of its regulatory responsibilities. NeuroBo also relies on third parties to conduct its preclinical studies in accordance with Good Laboratory Practice, or GLP, requirements and the Laboratory Animal Welfare Act of 1966 requirements. NeuroBo, its CROs and its clinical trial sites are required to comply with regulations and current Good Clinical Practices, or GCP, and comparable foreign requirements to ensure that the health, safety and rights of patients are protected in clinical trials, and that data integrity is assured. Regulatory authorities ensure compliance with GCP requirements through periodic inspections of trial sponsors and trial sites. If NeuroBo, any of its CROs or its clinical trial sites fail to comply with applicable GCP requirements, the clinical data generated in its clinical trials or a specific site may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require NeuroBo to perform additional clinical trials before approving its marketing applications.

NeuroBo's CROs are not NeuroBo's employees, and except for remedies available to NeuroBo under its agreements with such CROs, NeuroBo cannot control whether or not they devote sufficient time and resources to its ongoing clinical and preclinical programs. If CROs do not successfully carry out their contractual obligations or meet expected timelines or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to NeuroBo's clinical protocols, regulatory requirements or for other reasons, NeuroBo's clinical trials may be extended, delayed or terminated and NeuroBo may not be able to obtain regulatory approval for or successfully commercialize its product candidates. As a result, NeuroBo's results of operations and the commercial prospects for its product candidates would be harmed, its costs could increase and its ability to generate revenues could be delayed.

***Disruptions in NeuroBo's supply chain could delay the commercial launch of its product candidates.***

Any significant disruption in NeuroBo's supplier relationships could harm its business. NeuroBo currently relies on a single source supplier for the botanical components of NB-01, *Dioscorea Rhizome* and *Dioscoreae Nipponicae Rhizoma*. If this single source supplier suffers a major natural or man-made disaster at its manufacturing facility, NeuroBo would not be able to manufacture NB-01 on a commercial scale until a qualified alternative supplier is identified. Although alternative sources of supply exist, the number of third party suppliers with the necessary manufacturing and regulatory expertise and facilities is limited, and it could be expensive and take a significant amount of time to arrange for alternative suppliers. Any significant delay in the supply of a product candidate or its key materials for an ongoing clinical study could considerably delay completion of NeuroBo's clinical studies, product testing and potential regulatory approval of its product candidates. If NeuroBo's manufacturers or NeuroBo are unable to purchase these key materials after regulatory approval has been obtained for NeuroBo's product candidates, the commercial launch of its product candidates would be delayed, which would impair its ability to generate revenues from the sale of its product candidates.

***NeuroBo's employees, principal investigators, CROs and consultants may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements, which could have a material adverse effect on its business.***

NeuroBo is exposed to the risk that its employees, principal investigators, CROs and consultants may engage in fraudulent conduct or other illegal activity. Misconduct by these parties could include failures to comply with FDA regulations or similar regulations of comparable foreign regulatory authorities, to provide accurate information to the FDA or comparable foreign regulatory authorities, to comply with manufacturing standards NeuroBo has established, to comply with federal and state healthcare fraud and abuse laws and regulations and similar laws and regulations established and enforced by comparable foreign regulatory authorities, to report financial information or data accurately or to disclose unauthorized activities to NeuroBo. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Employee or third-party misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to NeuroBo's reputation. It is not always possible to identify and deter employee misconduct, and the precautions NeuroBo takes to detect and prevent this activity, such as employee training, may not be effective in controlling unknown or unmanaged risks or losses or in protecting NeuroBo from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. If any such actions are instituted against NeuroBo, and NeuroBo is not successful in defending itself or asserting its rights, those actions could have a significant impact on its business and results of operations, including the imposition of significant fines or other sanctions.

***NeuroBo may seek to selectively establish additional collaboration relationships, and if NeuroBo is unable to establish them on commercially reasonable terms, NeuroBo may have to alter its development and commercialization plans.***

NeuroBo's drug development programs and the potential commercialization of its product candidates will require substantial additional cash to fund expenses. For some of its product candidates, NeuroBo may decide to collaborate with additional pharmaceutical and biotechnology companies for the development and potential commercialization of those product candidates.

NeuroBo faces significant competition in seeking appropriate collaborators. Whether NeuroBo reaches a definitive agreement for an additional collaboration will depend, among other things, upon its assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. Those factors may include the design or results of clinical trials, the likelihood of approval by the FDA or similar regulatory authorities outside the United States, the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing products, the existence of uncertainty with respect to NeuroBo's ownership of technology, which can exist if there is a challenge to such ownership without regard to the merits of the challenge and industry and market conditions generally. The collaborator may also consider alternative product candidates for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with NeuroBo for its product candidate.

Any future strategic partnerships could materially impact NeuroBo's business, financial condition and results of operations. No assurance can be given, however, that NeuroBo will enter into any such strategic collaboration or, if entered into, that any such strategic collaboration will prove to be successful.

***Collaborations are complex and time-consuming to negotiate and document. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators.***

If NeuroBo decides to collaborate with an additional third party in connection with any of its development programs or product candidates, NeuroBo may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If NeuroBo is unable to do so, NeuroBo may have to curtail the development program or the product candidate for which NeuroBo is seeking to collaborate, reduce or delay its development program or one or more of its other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase its expenditures and undertake development or commercialization activities at its own expense. If NeuroBo elects to increase its expenditures to fund development or commercialization activities on its own, NeuroBo may need to obtain additional capital, which may not be available to NeuroBo on acceptable terms or at all. If NeuroBo does not have sufficient funds, NeuroBo may not be able to further develop its product candidates or bring them to market and generate product revenue.

***NeuroBo is substantially dependent on the success of its relationship with Dong-A ST. To the extent NeuroBo enters into any additional collaborations, NeuroBo will depend on such collaborations for the development and commercialization of its product candidates. If those collaborations are not successful, NeuroBo may not be able to capitalize on the market potential of its product candidates.***

NeuroBo may selectively seek additional third-party collaborators for the development and commercialization of its product candidates. NeuroBo's likely collaborators for any collaboration arrangements include large and mid-size pharmaceutical companies, regional and national pharmaceutical companies and biotechnology companies. If NeuroBo enters into any such arrangements with any third parties, NeuroBo will likely have limited control over the amount and timing of resources that its collaborators dedicate to the development or commercialization of its product candidates. NeuroBo's ability to generate revenue from these arrangements will depend on its collaborators' abilities to successfully perform the functions assigned to them in these arrangements.

Collaborations involving NeuroBo's product candidates pose many risks to NeuroBo, including that:

- collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations;

- collaborators may not pursue development and commercialization of NeuroBo's product candidates or may elect not to continue or renew development or commercialization programs based on clinical trial results, changes in the collaborator's strategic focus or available funding or external factors such as an acquisition that diverts resources or creates competing priorities;

- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;

- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with NeuroBo's product candidates or products if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than NeuroBo's;

- collaborators with marketing and distribution rights to one or more product candidates or products may not commit sufficient resources to the marketing and distribution of such drugs;

- collaborators may not properly maintain or defend NeuroBo's intellectual property rights or may use NeuroBo's proprietary information in such a way as to invite litigation that could jeopardize or invalidate NeuroBo's proprietary information or expose NeuroBo to potential litigation;

- disputes may arise between the collaborators and NeuroBo that result in the delay or termination of the research, development or commercialization of NeuroBo's product candidates or products or that result in costly litigation or arbitration that diverts management attention and resources;

- NeuroBo may lose certain valuable rights under circumstances identified in its collaborations if NeuroBo undergoes a change of control;

- collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates; and

- collaboration agreements may not lead to development or commercialization of product candidates in the most efficient manner or at all. In addition, if a future collaborator of NeuroBo's were to be involved in a business combination, the continued pursuit and emphasis on NeuroBo's product development or commercialization program under such collaboration could be delayed, diminished or terminated.

***NeuroBo may engage in future acquisitions or in-licenses of technology that could disrupt NeuroBo's business, cause dilution to the combined organization's stockholders and harm its financial condition and operating results.***

While NeuroBo currently has no specific plans to acquire any other businesses or in-license any additional products or technology, NeuroBo may, in the future, make acquisitions or licenses of, or investments in, companies, products or technologies that NeuroBo believes are a strategic or commercial fit with its current product candidates and business or otherwise offer opportunities for NeuroBo. In connection with these acquisitions or investments, the combined organization may:

- issue stock that would dilute its stockholders' percentage of ownership;

- expend cash;

- incur debt and assume liabilities; and

- incur amortization expenses related to intangible assets or incur large and immediate write-offs.

NeuroBo also may be unable to find suitable acquisition or license candidates and NeuroBo may not be able to complete acquisitions or licenses on favorable terms, if at all. If NeuroBo does complete

an acquisition or license, NeuroBo cannot assure you that it will ultimately strengthen its competitive position or that it will not be viewed negatively by customers, financial markets or investors. Further, future acquisitions or licenses could also pose numerous additional risks to NeuroBo's operations, including:

- problems integrating the purchased or licensed business, products or technologies;
- increases to NeuroBo's expenses;
- the failure to have discovered undisclosed liabilities of the acquired or licensed asset or company;
- diversion of management's attention from their day-to-day responsibilities;
- harm to NeuroBo's operating results or financial condition;
- entrance into markets in which NeuroBo has limited or no prior experience; and
- potential loss of key employees, particularly those of the acquired entity.

NeuroBo may not be able to complete one or more acquisitions or effectively integrate the operations, products or personnel gained through any such acquisition without a material adverse effect on its business, financial condition and results of operations.

**Risks Related to NeuroBo's Intellectual Property**

***Laws and rulings by U.S. courts make it difficult to predict how patents will be issued or enforced in the biotechnology industry.***

Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may have a significant impact on NeuroBo's ability to protect its technology and enforce its intellectual property rights. There have been numerous changes to the patent laws and to the rules of the United States Patent and Trademark Office, or USPTO, which may have a significant impact on NeuroBo's ability to protect its technology and enforce its intellectual property rights. For example, the Leahy-Smith America Invents Act, which was signed into law in 2011, includes a transition from a "first-to-invent" system to a "first-to-file" system, and changes the way issued patents are challenged. Certain changes, such as the institution of inter partes review proceedings, came into effect on September 16, 2012. Substantive changes to patent law associated with the America Invents Act may affect NeuroBo's ability to obtain patents, and, if obtained, to enforce or defend them in litigation or post-grant proceedings, all of which could harm NeuroBo's business.

Furthermore, the patent positions of companies engaged in the development and commercialization of biologics and pharmaceuticals are particularly uncertain. Two cases involving diagnostic method claims and "gene patents" have been decided by the Supreme Court. On March 20, 2012, the Supreme Court issued a decision in Mayo Collaborative Services v. Prometheus Laboratories, Inc., or Prometheus, a case involving patent claims directed to measuring a metabolic product in a patient to optimize a drug dosage amount for the patient. According to the Supreme Court, the addition of well-understood, routine or conventional activity such as "administering" or "determining" steps was not enough to transform an otherwise patent ineligible natural phenomenon into patent eligible subject matter. On July 3, 2012, the USPTO issued guidance indicating that process claims directed to a law of nature, a natural phenomenon or an abstract idea that do not include additional elements or steps that integrate the natural principle into the claimed invention such that the natural principle is practically applied and the claim amounts to significantly more than the natural principle itself should be rejected as directed to non-statutory subject matter. On June 13, 2013, the Supreme Court issued its decision in Association for Molecular Pathology v. Myriad Genetics, Inc., or Myriad, a case involving patent claims held by Myriad Genetics, Inc. relating to the breast cancer

susceptibility genes BRCA1 and BRCA2. Myriad held that isolated segments of naturally occurring DNA, such as the DNA constituting the BRCA1 and BRCA2 genes, is not patent eligible subject matter, but that complementary DNA, which is an artificial construct that may be created from RNA transcripts of genes, may be patent eligible.

NeuroBo cannot assure you that its efforts to seek patent protection for its technology and products will not be negatively impacted by the decisions described above, rulings in other cases or changes in guidance or procedures issued by the USPTO. NeuroBo cannot fully predict what impact the Supreme Court's decisions in Prometheus and Myriad may have on the ability of life science companies to obtain or enforce patents relating to their products and technologies in the future.

Moreover, although the Supreme Court has held in Myriad that isolated segments of naturally occurring DNA are not patent-eligible subject matter, certain third parties could allege that activities that NeuroBo may undertake infringe other gene-related patent claims, and NeuroBo may deem it necessary to defend itself against these claims by asserting non-infringement and/or invalidity positions, or pay to obtain a license to these claims. In any of the foregoing or in other situations involving third-party intellectual property rights, if NeuroBo is unsuccessful in defending against claims of patent infringement, NeuroBo could be forced to pay damages or be subjected to an injunction that would prevent NeuroBo from utilizing the patented subject matter. Such outcomes could harm NeuroBo's business.

***If NeuroBo is unable to obtain and maintain sufficient intellectual property rights, its competitive position could be harmed.***

NeuroBo depends on its ability to protect its proprietary technology. NeuroBo relies on trade secret, patent, copyright and trademark laws, and confidentiality, licensing and other agreements with employees and third parties, all of which offer only limited protection. NeuroBo's success depends in large part on its ability to obtain and maintain patent protection in the United States and other countries with respect to its proprietary technology and products. Where NeuroBo has the right to do so under its license agreements, NeuroBo seeks to protect its proprietary position by filing patent applications in the United States and abroad related to its novel technologies and products that are important to its business.

The patent positions of biotechnology and pharmaceutical companies generally are highly uncertain, involve complex legal and factual questions and have in recent years been the subject of much litigation. As a result, the issuance, scope, validity, enforceability and commercial value of NeuroBo's patents, including those patent rights licensed to NeuroBo by third parties, are highly uncertain.

The steps NeuroBo has taken to police and protect its proprietary rights may not be adequate to preclude misappropriation of its proprietary information or infringement of its intellectual property rights, both inside and outside the United States. The rights already granted under any of NeuroBo's currently issued patents and those that may be granted under future issued patents may not provide NeuroBo with the proprietary protection or competitive advantages that NeuroBo is seeking. If NeuroBo is unable to obtain and maintain patent protection for its technology and products, or if the scope of the patent protection obtained is not sufficient, NeuroBo's competitors could develop and commercialize technology and products similar or superior to NeuroBo's, and NeuroBo's ability to successfully commercialize its technology and products may be adversely affected.

With respect to patent rights, NeuroBo does not know whether any of the pending patent applications for any of its product candidates will result in the issuance of patents that protect its technology or products, or which will effectively prevent others from commercializing competitive technologies and products. NeuroBo's pending applications cannot be enforced against third parties practicing the technology claimed in such applications unless and until a patent issues from such

applications. Further, the examination process may require NeuroBo or its licensors to narrow the claims, which may limit the scope of patent protection that may be obtained. Although NeuroBo's license agreement with Dong-A ST includes a number of issued patents that are exclusively licensed to NeuroBo, the issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, issued patents that NeuroBo owns or has licensed from third parties may be challenged in the courts or patent offices in the United States and abroad. Such challenges may result in the loss of patent protection, the narrowing of claims in such patents, or the invalidity or unenforceability of such patents, which could limit NeuroBo's ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection for its technology and products. Protecting against the unauthorized use of NeuroBo's patented technology, trademarks and other intellectual property rights is expensive, difficult and may, in some cases, not be possible. In some cases, it may be difficult or impossible to detect third party infringement or misappropriation of NeuroBo's intellectual property rights, even in relation to issued patent claims, and proving any such infringement may be even more difficult.

***NeuroBo could be required to incur significant expenses to obtain its intellectual property rights, and NeuroBo cannot ensure that it will obtain meaningful patent protection for its product candidates.***

The patent prosecution process is expensive and time-consuming, and NeuroBo may not be able to file and prosecute all necessary or desirable patent applications, or maintain and/or enforce patents that may issue based on NeuroBo's patent applications, at a reasonable cost or in a timely manner. In addition, it is also possible that NeuroBo will fail to identify patentable aspects of further inventions made in the course of its development and commercialization activities before they are publicly disclosed, making it too late to obtain patent protection on them. Further, given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. NeuroBo expects to seek extensions of patent terms where these are available in any countries where NeuroBo is prosecuting patents. This includes in the United States under the Drug Price Competition and Patent Term Restoration Act of 1984, which permits a patent term extension of up to five years beyond the expiration of a patent that covers an approved product where the permission for the commercial marketing or use of the product is the first permitted commercial marketing or use, and as long as the remaining term of the patent does not exceed 14 years. The scope of protection during the period of the patent term extension, however, does not extend to the full scope of the claim, but instead only to the scope of the product as approved. And the applicable authorities, including the FDA in the United States, and any equivalent regulatory authority in other countries, may not agree with NeuroBo's assessment of whether such extensions are available, and may refuse to grant extensions to NeuroBo's patents, or may grant more limited extensions than NeuroBo requests. If this occurs, NeuroBo's competitors may be able to take advantage of NeuroBo's investment in development and clinical trials by referencing NeuroBo's clinical and preclinical data and launch their product earlier than might otherwise be the case. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of NeuroBo's patents or narrow the scope of NeuroBo's patent protection. The laws of foreign countries may not protect NeuroBo's rights to the same extent as the laws of the United States, and these foreign laws may also be subject to change. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing or in some cases not at all. Therefore, NeuroBo cannot be certain that NeuroBo or its licensors were the first to make the inventions claimed in NeuroBo's owned or licensed patents or pending patent applications, or that NeuroBo or its licensors were the first to file for patent protection of such inventions.

In March 2013, the United States transitioned to a 'first to file' system in which the first inventor to file a patent application will be entitled to the patent. Third parties are allowed to submit prior art

prior to the issuance of a patent by the USPTO and may become involved in post-grant review or derivation proceedings for applications filed on or after March 16, 2013, interference proceedings for applications filed before March 16, 2013, ex parte reexamination, or inter partes review challenging NeuroBo's patent rights or the patent rights of others. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate, NeuroBo's patent rights, which could adversely affect NeuroBo's competitive position with respect to third parties.

***Obtaining and maintaining NeuroBo's patent protection depends on compliance with various procedural, documentary, fee payment and other requirements imposed by governmental patent agencies, and NeuroBo's patent protection could be reduced or eliminated for non-compliance with these requirements.***

Periodic maintenance fees on any issued patent are due to be paid to the USPTO, and foreign patent agencies in several stages over the lifetime of the patent. The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other requirements during the patent application process. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. If NeuroBo or its licensors fail to maintain the patents and patent applications covering its product candidates, NeuroBo's competitors might be able to enter the market, which would have a material adverse effect on its business.

***NeuroBo may become involved in lawsuits to protect or enforce its intellectual property, which could be expensive, time consuming and unsuccessful.***

In addition to the possibility of litigation relating to infringement claims asserted against it, NeuroBo may become a party to other patent litigation and other proceedings, including inter partes review proceedings, post-grant review proceedings, derivation proceedings declared by the USPTO and similar proceedings in foreign countries, regarding intellectual property rights with respect to its current or future technologies or product candidates or products. The cost to NeuroBo of any patent litigation or other proceeding, even if resolved in NeuroBo's favor, could be substantial. Some of NeuroBo's competitors may be able to sustain the costs of such litigation or proceedings more effectively than NeuroBo can because of their substantially greater financial resources. Patent litigation and other proceedings may also absorb significant management time. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could impair NeuroBo's ability to compete in the marketplace.

Competitors may infringe or otherwise violate NeuroBo's intellectual property, including patents that may issue to or be licensed by NeuroBo. As a result, NeuroBo may be required to file claims in an effort to stop third-party infringement or unauthorized use. Any such claims could provoke these parties to assert counterclaims against NeuroBo, including claims alleging that NeuroBo infringes their patents or other intellectual property rights. This can be prohibitively expensive, particularly for a company of NeuroBo's size, and time-consuming, and even if NeuroBo is successful, any award of monetary damages or other remedy NeuroBo may receive may not be commercially valuable. In addition, in an infringement proceeding, a court may decide that NeuroBo's asserted intellectual property is not valid or is unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that NeuroBo's intellectual property does not cover its technology. An adverse determination in any litigation or defense proceedings could put NeuroBo's intellectual

property at risk of being invalidated or interpreted narrowly and could put NeuroBo's patent applications at risk of not issuing.

If the breadth or strength of NeuroBo's patent or other intellectual property rights is compromised or threatened, it could allow third parties to commercialize NeuroBo's technology or products or result in NeuroBo's inability to commercialize its technology and products without infringing third-party intellectual property rights. Further, third parties may be dissuaded from collaborating with NeuroBo.

Interference or derivation proceedings brought by the USPTO or its foreign counterparts may be necessary to determine the priority of inventions with respect to NeuroBo's patent applications, and NeuroBo may also become involved in other proceedings, such as re-examination proceedings, before the USPTO or its foreign counterparts. Due to the substantial competition in the pharmaceutical space, the number of such proceedings may increase. This could delay the prosecution of NeuroBo's pending patent applications or impact the validity and enforceability of any future patents that NeuroBo may obtain. In addition, any such litigation, submission or proceeding may be resolved adversely to NeuroBo and, even if successful, may result in substantial costs and distraction to NeuroBo's management.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of NeuroBo's confidential information could be compromised by disclosure during this type of litigation. Moreover, intellectual property law relating to the fields in which NeuroBo operates is still evolving and, consequently, patent and other intellectual property positions in NeuroBo's industry are subject to change and are often uncertain. NeuroBo may not prevail in any of these suits or other efforts to protect its technology, and the damages or other remedies awarded, if any, may not be commercially valuable. During the course of this type of litigation, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, the market price for the combined organization's common stock could be significantly harmed.

***From time to time, NeuroBo may need to obtain or rely on licenses to proprietary technologies, which may not be available to NeuroBo or are available only on commercially unreasonable terms, or NeuroBo may lose certain licenses which may be difficult to replace.***

NeuroBo may need to obtain licenses to patents and other proprietary rights held by third parties to develop, manufacture and market its product candidates. If NeuroBo is unable to timely obtain these licenses on commercially reasonable terms and maintain these licenses, NeuroBo's ability to commercially market its product candidates may be inhibited or prevented, which could have a material adverse effect on its business, results of operations, financial condition and cash flows.

***A number of pharmaceutical companies have been the subject of intense review by the U.S. Federal Trade Commission or a corresponding agency in another country based on how they have conducted or settled drug patent litigation, and certain reviews have led to an allegation of an anti-trust violation, sometimes resulting in a fine or loss of rights. NeuroBo cannot be sure that it would not also be subject to such a review or that the result of the review would be favorable to NeuroBo, which could result in a fine or penalty.***

The U.S. Federal Trade Commission, or FTC, has brought a number of lawsuits in federal court in the past few years to challenge Hatch Waxman ANDA litigation settlements between innovator companies and generic companies as anti-competitive. The FTC has taken an aggressive position that anything of value is a payment, whether money is paid or not. Under their approach, if an innovator as part of a patent settlement agrees not to launch or delay launch of an authorized generic during the 180-day period granted to the first generic company to challenge an Orange Book listed patent covering an innovator drug, or negotiates a delay in entry without payment, the FTC may consider it an unacceptable reverse payment. The biopharmaceutical industry argues that such agreements are rational

business decisions to dismiss risk and are immune from antitrust attack if the terms of the settlement are within the scope of the exclusionary potential of the patent. In 2013, the U.S. Supreme Court, in a five-to-three decision in FTC v. Actavis, Inc. rejected both the biopharmaceutical industry's and FTC's arguments with regard to so-called reverse payments, and held that whether a "reverse payment" settlement involving the exchange of consideration for a delay in entry is subject to an anticompetitive analysis depends on five considerations: (a) the potential for genuine adverse effects on competition; (b) the justification of payment; (c) the patentee's ability to bring about anticompetitive harm; (d) whether the size of the payment is a workable surrogate for the patent's weakness; and (e) that antitrust liability for large unjustified payments does not prevent litigating parties from settling their lawsuits, for example, by allowing the generic to enter the market before the patent expires without the patentee's paying the generic. Furthermore, whether a reverse payment is justified depends upon its size, its scale in relation to the patentee's anticipated future litigation costs, its independence from other services for which it might represent payment, as was the case in Actavis, and the lack of any other convincing justification. The Court held that reverse payment settlements can potentially violate antitrust laws and are subject to the standard antitrust rule-of-reason analysis, with the burden of proving that an agreement is unlawful on the FTC and leaving to lower courts the structuring of such rule of reason analysis. If NeuroBo is faced with drug patent litigation, including Hatch Waxman litigation with a generic company, NeuroBo could be faced with such an FTC challenge based on that activity, including how or whether NeuroBo settles the case, and even if NeuroBo strongly disagrees with the FTC's position, NeuroBo could face a significant expense or penalty.

***Third parties may initiate legal proceedings alleging that NeuroBo is infringing their intellectual property rights, the outcome of which would be uncertain and could have a material adverse effect on the success of NeuroBo's business.***

NeuroBo's commercial success depends upon its ability to develop, manufacture, market and sell its product candidates, and to use its proprietary technologies without infringing the proprietary rights of third parties. NeuroBo may become party to, or threatened with, future adversarial proceedings or litigation regarding intellectual property rights with respect to its products and technology, including interference and various post grant proceedings before the USPTO or non-U.S. opposition proceedings. Third parties may assert infringement claims against NeuroBo based on existing patents or patents that may be granted in the future.

As a result of any such infringement claims, or to avoid potential claims, NeuroBo may choose or be compelled to seek intellectual property licenses from third parties. These licenses may not be available on acceptable terms, or at all. Even if NeuroBo is able to obtain a license, the license would likely obligate NeuroBo to pay license fees or royalties or both, and the rights granted to NeuroBo likely would be nonexclusive, which would mean that its competitors also could obtain licenses to the same intellectual property. Ultimately, NeuroBo could be prevented from commercializing a product candidate or technology or be forced to cease some aspect of its business operations if, as a result of actual or threatened infringement claims, NeuroBo is unable to enter into licenses of the relevant intellectual property on acceptable terms. Further, if NeuroBo attempts to modify a product candidate or technology or to develop alternative methods or products in response to infringement claims or to avoid potential claims, NeuroBo could incur substantial costs, encounter delays in product introductions or interruptions in sales. Ultimately, such efforts could be unsuccessful.

***Intellectual property litigation could cause NeuroBo to spend substantial resources and distract NeuroBo's personnel from their normal responsibilities.***

Litigation or other legal proceedings relating to intellectual property claims, with or without merit, is unpredictable and generally expensive and time consuming and is likely to divert significant resources from NeuroBo's core business, including distracting its technical and management personnel from their

normal responsibilities. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of NeuroBo's confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of the combined organization's common stock and negatively impact the combined organization's ability to raise additional funds. Such litigation or proceedings could substantially increase NeuroBo's operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities.

NeuroBo may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of NeuroBo's competitors may be able to sustain the costs of such litigation or proceedings more effectively than NeuroBo can because of their greater financial resources and more mature and developed intellectual property portfolios. Accordingly, despite NeuroBo's efforts, NeuroBo may not be able to prevent third parties from infringing upon or misappropriating or from successfully challenging its intellectual property rights. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on NeuroBo's ability to compete in the marketplace.

***NeuroBo's trade secrets are difficult to protect and if NeuroBo is unable to protect the confidentiality of its trade secrets, its business and competitive position would be harmed.***

In addition to seeking patents for some of NeuroBo's technologies and product candidates, NeuroBo also relies on trade secrets, including unpatented know-how, technology and other proprietary information, to maintain its competitive position. NeuroBo seeks to protect these trade secrets, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to them, such as NeuroBo's employees, corporate collaborators, outside scientific collaborators, contract manufacturers, consultants, advisors and other third parties. NeuroBo also enters into confidentiality, non-competition, non-solicitation, and invention assignment agreements with its employees and consultants that obligate them to assign to NeuroBo any inventions developed in the course of their work for NeuroBo. However, NeuroBo cannot guarantee that NeuroBo has executed these agreements with each party that may have or have had access to its trade secrets or that the agreements NeuroBo has executed will provide adequate protection. Despite these efforts, any of these parties may breach the agreements and disclose NeuroBo's proprietary information, including its trade secrets, and NeuroBo may not be able to seek patent protection on technology relating to its product candidates or obtain adequate remedies for such breaches. As a result, NeuroBo may be forced to bring claims against third parties, or defend claims that they bring against NeuroBo, to determine ownership of what NeuroBo regards as its intellectual property. Monitoring unauthorized disclosure is difficult and NeuroBo does not know whether the procedures that NeuroBo has followed to prevent such disclosure are or will be adequate. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States may be less willing or unwilling to protect trade secrets. If any of the technology or information that NeuroBo protects as trade secrets were to be lawfully obtained or independently developed by a competitor, NeuroBo would have no right to prevent them from using that technology or information to compete with NeuroBo. If any of NeuroBo's trade secrets were to be disclosed to, or independently developed by, a competitor, NeuroBo's competitive position would be harmed.

***NeuroBo may be subject to claims that its employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.***

NeuroBo's employees, including members of its senior management, were previously employed at other biotechnology or pharmaceutical companies, including NeuroBo's competitors or potential competitors. All such individuals, including each member of NeuroBo's senior management, executed proprietary rights, non-disclosure and non-competition agreements in connection with such previous employment. Although NeuroBo tries to ensure that its employees do not use the proprietary information or know-how of others in their work for NeuroBo, NeuroBo may be subject to claims that NeuroBo or these employees have inadvertently or otherwise used or disclosed alleged trade secrets or other proprietary information, of any such employee's former employer. NeuroBo is not aware of any threatened or pending claims related to these matters or concerning the agreements with its senior management, but in the future litigation may be necessary to defend against such claims. If NeuroBo fails in defending any such claims, in addition to paying monetary damages, NeuroBo may lose valuable intellectual property rights or personnel. Even if NeuroBo is successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

***NeuroBo may not be able to protect its intellectual property rights throughout the world.***

Filing, prosecuting and defending patents on all of NeuroBo's product candidates throughout the world would be prohibitively expensive. Competitors may use NeuroBo's technologies in jurisdictions where NeuroBo has not obtained patent protection to develop their own products and further, may export otherwise infringing products to territories where NeuroBo has patent protection, but where enforcement is not as strong as that in the United States. These products may compete with NeuroBo's products in jurisdictions where NeuroBo does not have any issued patents and its patent claims or other intellectual property rights may not be effective or sufficient to prevent them from so competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biopharmaceuticals, which could make it difficult for NeuroBo to stop the infringement of its patents or marketing of competing products in violation of its proprietary rights generally. Proceedings to enforce NeuroBo's patent rights in foreign jurisdictions could result in substantial cost and divert its efforts and attention from other aspects of its business.

***Intellectual property rights do not necessarily address all potential threats to NeuroBo's competitive advantage.***

The degree of future protection afforded by NeuroBo's intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect NeuroBo's business or permit NeuroBo to maintain its competitive advantage. For example:

- others may be able to make product candidates that are similar to NeuroBo's candidates but that are not covered by the claims of the patents that NeuroBo owns or have exclusively licensed;
- NeuroBo or its future licensors or collaborators might not have been the first to make the inventions covered by the issued patent or pending patent application that NeuroBo owns or have exclusively licensed;
- NeuroBo or its future licensors or collaborators might not have been the first to file patent applications covering certain of NeuroBo's inventions;
- others may independently develop similar or alternative technologies or duplicate any of NeuroBo's technologies without infringing NeuroBo's intellectual property rights;

- it is possible that NeuroBo's pending patent applications will not lead to issued patents;
- issued patents that NeuroBo owns or has exclusively licensed may be held invalid or unenforceable, as a result of legal challenges by NeuroBo's competitors;
- NeuroBo's competitors might conduct research and development activities in countries where it does not have patent rights and then use the information learned from such activities to develop competitive products for sale in NeuroBo's major commercial markets;
- NeuroBo may not develop additional proprietary technologies that are patentable; and
- the patents of others may have an adverse effect on NeuroBo's business.

Should any of these events occur, they could significantly harm NeuroBo's business, results of operations and prospects.

**Risks Related to Regulatory Approval of NeuroBo's Product Candidates and Other Legal and Compliance Matters**

***If NeuroBo is not able to obtain, or if there are delays in obtaining, required regulatory approvals, NeuroBo will not be able to commercialize, or will be delayed in commercializing, its product candidates, and its ability to generate revenue will be impaired.***

NeuroBo's product candidates and the activities associated with their development and commercialization, including their design, testing, manufacture, safety, efficacy, recordkeeping, labeling, storage, approval, advertising, promotion, sale and distribution, are subject to comprehensive regulation by the FDA and other regulatory agencies in the United States and by comparable authorities in other countries. Failure to obtain marketing approval for a product candidate will prevent NeuroBo from commercializing the product candidate. NeuroBo has not received approval to market any of its product candidates from regulatory authorities in any jurisdiction. Securing regulatory approval requires the submission of extensive preclinical and clinical data and supporting information to the various regulatory authorities for each therapeutic indication to establish the product candidate's safety and efficacy. Securing regulatory approval also requires the submission of information about the product manufacturing process to, and inspection of manufacturing facilities by, the relevant regulatory authority. NeuroBo's product candidates may not be effective, may be only moderately effective or may prove to have undesirable or unintended side effects, toxicities or other characteristics that may preclude NeuroBo from obtaining marketing approval or prevent or limit commercial use.

The process of obtaining marketing approvals, both in the United States and elsewhere, is expensive, may take many years and can vary substantially based upon a variety of factors, including the type, complexity and novelty of the product candidates involved. NeuroBo cannot assure you that it will ever obtain any marketing approvals in any jurisdiction. Changes in marketing approval requirements during the development period, changes in or the enactment of additional statutes or regulations or changes in regulatory review for each submitted product application may cause delays in the approval or rejection of an application. The FDA and comparable authorities in other countries have substantial discretion in the review and approval process and may refuse to accept any application or may decide that NeuroBo's data is insufficient for approval and require additional nonclinical or other studies, and clinical trials. In addition, varying interpretations of the data obtained from preclinical testing and clinical trials could delay, limit or prevent marketing approval of a product candidate. Additionally, any marketing approval that NeuroBo ultimately may obtain may be limited or subject to restrictions or post-approval commitments that render the approved product not commercially viable.

***Failure to obtain regulatory approval in international jurisdictions would prevent NeuroBo's product candidates from being marketed abroad.***

In order to market and sell NeuroBo's products in the European Union and many other jurisdictions, NeuroBo must obtain separate marketing approvals and comply with numerous and varying regulatory requirements. The regulatory review and approval process outside the United States generally includes all of the risks associated with obtaining FDA approval, but can involve additional testing and clinical trial requirements and in-country regulatory and/or legal representation. NeuroBo may need to partner with third parties in order to obtain approvals outside the United States. In addition, in many countries worldwide, it is required that the product be approved for reimbursement before the product can be approved for sale in that country. NeuroBo may not obtain approvals from regulatory authorities outside the United States on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions, and approval by one regulatory authority outside the United States does not ensure approval by regulatory authorities in other countries or jurisdictions or by the FDA. NeuroBo may not be able to file for marketing approvals and may not receive necessary approvals to commercialize its products in any market. If NeuroBo is unable to obtain approval of NB-01 or any other product candidate by regulatory authorities in the European Union or other countries, the commercial potential of those product candidates may be significantly diminished and NeuroBo's business prospects could decline.

***A breakthrough therapy designation by the FDA for NeuroBo's product candidates may not lead to a faster development or regulatory review or approval process, and it does not increase the likelihood that NeuroBo's product candidates will receive marketing approval.***

NeuroBo may seek a breakthrough designation from FDA for some of its product candidates. Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if NeuroBo believes one of its product candidates meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. The receipt of a breakthrough therapy designation for a product candidate may not result in a faster development process, review or approval compared to other drugs and does not assure ultimate approval of the designated product candidate by the FDA. In addition, even if one or more of NeuroBo's product candidates qualify as breakthrough therapies, the FDA may later decide that the products no longer meet the conditions for qualification or decide that the time period for FDA review or approval will not be shortened.

***A fast track designation by the FDA may not actually lead to a faster development or regulatory review or approval process, and it does not increase the likelihood that NeuroBo's product candidates will receive marketing approval.***

NeuroBo may seek fast track designation for some of its product candidates, though NeuroBo does not currently have fast track designation for any of its product candidates. If a drug is intended for the treatment of a serious or life-threatening condition and the drug demonstrates the potential to address unmet medical needs for this condition, the sponsor may apply for FDA fast track designation. The FDA has broad discretion whether or not to grant this designation, and even if NeuroBo believes a particular product candidate is eligible for this designation, NeuroBo cannot be certain that the FDA would decide to grant it. Even if NeuroBo does receive fast track designation, NeuroBo may not experience a faster development process, review or approval compared to conventional FDA procedures. The FDA may withdraw fast track designation if it believes that the designation is no longer supported by data from NeuroBo's clinical development program.

***Even if NeuroBo's product candidates receive regulatory approval, they may still face future development and regulatory difficulties and any approved products will be subject to extensive post-approval regulatory requirements.***

If NeuroBo obtains regulatory approval for a product candidate, it would be subject to extensive ongoing requirements by the FDA and comparable foreign regulatory authorities governing the manufacture, quality control, further development, labeling, packaging, storage, distribution, safety surveillance, import, export, advertising, promotion, recordkeeping and reporting of safety and other post-market information. The safety profile and efficacy of any product will continue to be closely monitored by the FDA and comparable foreign regulatory authorities after approval. If the FDA or comparable foreign regulatory authorities become aware of new safety information after approval of any of NeuroBo's product candidates, these regulatory authorities may require labeling changes or the FDA may require establishment of a Risk Evaluation Mitigation Strategy, or REMS, or similar strategy, impose significant restrictions on a product's indicated uses or marketing, impose ongoing requirements for potentially costly post-approval studies or post-market surveillance. Progress reports are required at quarterly intervals, every six months and at annual intervals depending upon the country, and more frequently if serious adverse events occur.

In addition, manufacturers of drugs and their facilities are subject to continual review and periodic inspections by the FDA and other regulatory authorities for compliance with cGMP regulations. If a regulatory agency discovers previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured, a regulatory agency may impose restrictions on that product, the manufacturing facility or NeuroBo, including requiring recall or withdrawal of the product from the market or suspension of manufacturing. If NeuroBo, its product candidates or the manufacturing facilities for its product candidates fail to comply with cGMPs and other applicable regulatory requirements, the FDA may, among other things:

- issue warning letters;
- request modifications to promotional materials or require NeuroBo to provide corrective information to healthcare practitioners;
- require NeuroBo to enter into a consent decree, which can include imposition of various fines, reimbursements for inspection costs, required due dates for specific actions and penalties for noncompliance;
- seek an injunction or impose civil or criminal penalties or monetary fines;
- suspend or withdraw regulatory approval for the drug product;
- suspend any ongoing clinical trials;
- refuse to approve pending applications or supplements to applications filed by NeuroBo;
- suspend or impose restrictions on operations, including costly new manufacturing requirements; or
- seize or detain products, refuse to permit the import or export of products, or require NeuroBo to initiate a product recall.

The occurrence of any event or penalty described above may inhibit NeuroBo's ability to commercialize its products and generate revenue.

***Any product candidate for which NeuroBo obtains marketing approval could be subject to marketing restrictions or withdrawal from the market, and NeuroBo may be subject to penalties if NeuroBo fails to comply with regulatory requirements or if NeuroBo experiences unanticipated problems with its products.***

Any product candidate for which NeuroBo obtains marketing approval will be subject to continual requirements of and review by the FDA and other regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, registration and listing requirements, cGMP requirements, quality assurance and corresponding maintenance of records and documents and requirements regarding the distribution of samples to physicians and recordkeeping. Even if marketing approval of a product candidate is granted, the approval may be subject to limitations on the indicated uses for which the product may be marketed or to the conditions of approval, or contain requirements for costly post-marketing testing and surveillance to monitor the safety or efficacy of the medicine. The FDA closely regulates the post-approval marketing and promotion of drugs to ensure that they are marketed only for the approved indications and in accordance with the provisions of the approved labeling. The FDA imposes stringent restrictions on manufacturers' communications regarding off-label use and if NeuroBo does not market its products for their approved indications, NeuroBo may be subject to enforcement action for off-label marketing and/or promotion.

In addition, later discovery of previously unknown problems with NeuroBo's products, manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on such products, manufacturers or manufacturing processes;
- restrictions on the labeling, marketing, distribution or use of a product;
- requirements to conduct post-approval clinical trials;
- warning or untitled letters;
- withdrawal of the products from the market;
- refusal to approve pending applications or supplements to approved applications that NeuroBo submits;
- recall of products;
- fines, restitution or disgorgement of profits or revenue;
- suspension or withdrawal of marketing approvals for the drug products;
- refusal to permit the import or export of NeuroBo's products;
- product seizure; and
- injunctions or the imposition of civil or criminal penalties.

**Risks Related to NeuroBo's Business Operations, Employee Matters and Managing Growth**

***NeuroBo currently has a limited number of employees and its future success depends on its ability to retain its executive officers and to attract, retain and motivate qualified personnel.***

Because of the specialized scientific nature of NeuroBo's business, NeuroBo relies heavily on its ability to attract and retain qualified scientific, technical and managerial personnel. NeuroBo is highly dependent upon current members of its management team. NeuroBo's employment relationships with its senior executives, these agreements are at-will and do not prevent management from terminating their employment with NeuroBo at any time by providing the requisite advance notice. NeuroBo intends to increase its technical and management staff as needs arise and supporting resources become

available, but the loss of one or more of its senior executive officers could be detrimental to NeuroBo if NeuroBo cannot recruit suitable replacements in a timely manner. The competition for qualified personnel in the pharmaceutical field is intense and as a result, NeuroBo may be unable to continue to attract and retain qualified personnel necessary for the development of its business or to recruit suitable replacement personnel.

***NeuroBo will need to grow the size of its organization, and NeuroBo may experience difficulties in managing this growth.***

As of September 30, 2019, NeuroBo had 13 full-time employees, two of whom hold a Ph.D. As its development and commercialization plans and strategies develop, or as a result of any future acquisitions, NeuroBo will need additional managerial, operational, development, sales, marketing, financial and other resources. NeuroBo's management, personnel and systems currently in place will not be adequate to support this future growth. Future growth would impose significant added responsibilities on NeuroBo's employees, including:

- managing its clinical trials effectively;
- identifying, recruiting, maintaining, motivating and integrating additional employees;
- managing its internal development efforts effectively while complying with its contractual obligations to licensors, contractors and other third parties;
- improving its managerial, development, operational and finance systems; and
- expanding its facilities.

As its operations expand, NeuroBo will need to manage additional relationships with various strategic partners, suppliers and other third parties. NeuroBo's future financial performance and its ability to commercialize its product candidates and to compete effectively will depend, in part, on its ability to manage any future growth effectively. To that end, NeuroBo must be able to manage its development efforts and clinical trials effectively and hire, train and integrate additional management, administrative, research and development, and sales and marketing personnel. NeuroBo may not be able to accomplish these tasks, and its failure to accomplish any of them could prevent NeuroBo from successfully growing the company.

***The pharmaceutical industry is highly competitive and is subject to rapid and significant technological change, which could render NeuroBo's technologies and products obsolete or uncompetitive.***

The pharmaceutical industry is highly competitive and is subject to rapid and significant technological change, which could render certain of NeuroBo's products obsolete or uncompetitive. This is particularly true in the development of therapeutics for indications where new products and combinations of products are rapidly being developed that change the treatment paradigm for patients. There is no assurance that NeuroBo's product candidates will be the most effective, have the best safety profile, be the first to market, or be the most economical to make or use. The introduction of competitive therapies as alternatives to NeuroBo's product candidates could dramatically reduce the value of those development projects or chances of successfully commercializing those product candidates, which could have a material adverse effect on NeuroBo's long-term financial success.

NeuroBo will compete with companies in the United States and internationally, including major pharmaceutical and chemical companies, specialized CROs, research and development firms, universities and other research institutions. Many of NeuroBo's competitors have greater financial resources and selling and marketing capabilities, greater experience in clinical testing and human clinical trials of pharmaceutical products and greater experience in obtaining FDA and other regulatory

approvals than NeuroBo does. In addition, some of NeuroBo's competitors may have lower development and manufacturing costs.

***NeuroBo relies significantly on information technology and any failure, inadequacy, interruption or security lapse of that technology or loss of data, including any cyber security incidents, could compromise sensitive information related to its business, prevent NeuroBo from accessing critical information or expose NeuroBo to liability which could harm its ability to operate its business effectively and adversely affect its business and reputation.***

In the ordinary course of its business, NeuroBo, its contract research organizations and other third parties on which NeuroBo relies collect and store sensitive data, including legally protected patient health information, personally identifiable information about NeuroBo's employees, intellectual property, and proprietary business information. NeuroBo manages and maintains its applications and data utilizing on-site systems. These applications and data encompass a wide variety of business-critical information including research and development information and business and financial information.

The secure processing, storage, maintenance and transmission of this critical information is vital to NeuroBo's operations and business strategy. Despite the implementation of security measures, NeuroBo's internal computer systems and those of third parties with which NeuroBo contracts are vulnerable to damage from cyber-attacks, computer viruses, breaches, unauthorized access, interruptions due to employee error or malfeasance or other disruptions, or damage from natural disasters, terrorism, war and telecommunication and electrical failures. Any such event could compromise NeuroBo's networks and the information stored there could be accessed by unauthorized parties, publicly disclosed, lost or stolen. NeuroBo has measures in place that are designed to detect and respond to such security incidents and breaches of privacy and security mandates. Any such access, disclosure or other loss of information could result in legal claims or proceedings, liability under laws that protect the privacy of personal information, government enforcement actions and regulatory penalties. Unauthorized access, loss or dissemination could also disrupt NeuroBo's operations, including NeuroBo's ability to conduct research, development and commercialization activities, process and prepare company financial information, manage various general and administrative aspects of NeuroBo's business and damage its reputation, in addition to possibly requiring substantial expenditures of resources to remedy, any of which could adversely affect NeuroBo's business. The loss of clinical trial data could result in delays in NeuroBo's regulatory approval efforts and significantly increase its costs to recover or reproduce the data. In addition, there can be no assurance that NeuroBo will promptly detect any such disruption or security breach, if at all. To the extent that any disruption or security breach were to result in a loss of, or damage to, NeuroBo's data or applications, or inappropriate disclosure of confidential or proprietary information, NeuroBo could incur liability and its research, development and commercialization efforts could be delayed.

***Business disruptions could seriously harm NeuroBo's future revenues and financial condition and increase its costs and expenses.***

NeuroBo's operations could be subject to earthquakes, power shortages, telecommunications failures, water shortages, floods, hurricanes, typhoons, fires, extreme weather conditions, medical epidemics and other natural or manmade disasters or business interruptions. The occurrence of any of these business disruptions could seriously harm NeuroBo's operations and financial condition and increase its costs and expenses. NeuroBo relies on a single third-party manufacturer to provide NB-01. NeuroBo's ability to obtain clinical supplies of product candidates could be disrupted if the operations of these suppliers are affected by a man-made or natural disaster or other business interruption.

***NeuroBo's ability to use its NOLs to offset future taxable income may be subject to certain limitations.***

In general, under Section 382 of the Code, a corporation that undergoes an "ownership change" is subject to limitations on its ability to utilize its carryforwards to offset future taxable income. NeuroBo's existing NOL carryforwards, or NOLs, may be subject to limitations arising from previous ownership changes, and if NeuroBo undergoes an ownership change in connection with or after the merger, its ability to utilize NOLs could be further limited by Section 382 of the Code. Future changes in NeuroBo's stock ownership, some of which are outside of NeuroBo's control, could result in an ownership change under Section 382 of the Code. There is also a risk that due to regulatory changes, such as suspensions on the use of NOLs, or other unforeseen reasons, NeuroBo's existing and any future NOLs could expire or otherwise be unavailable to offset future income tax liabilities.

NeuroBo has not conducted a study to assess whether an ownership change has occurred or whether there have been multiple ownership changes since inception due to the significant complexity and cost associated with such a study.

***The comprehensive tax reform bill could adversely affect NeuroBo's business and financial condition.***

On December 22, 2017, President Trump signed into law the Tax Act that significantly reforms the Code. The Tax Act, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation on the deductibility of interest expense to 30% of adjusted earnings (except for certain small businesses), limitation of the deduction for NOLs to 80% of current year taxable income and elimination of NOL carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, reduction of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits. The overall impact of the Tax Act is immaterial to NeuroBo's business and financial condition. The impact of this tax reform on holders of the combined organization's common stock is also uncertain and could be adverse. You are urged to consult with your legal and tax advisors with respect to such legislation and the potential tax consequences of investing in the combined organization's common stock.

***Inadequate funding for the FDA, the SEC and other government agencies could hinder their ability to hire and retain key leadership and other personnel, prevent new products and services from being developed or commercialized in a timely manner or otherwise prevent those agencies from performing normal business functions on which the operation of NeuroBo's business may rely, which could negatively impact NeuroBo's business.***

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, the ability to hire and retain key personnel and accept the payment of user fees, and statutory, regulatory and policy changes. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of the SEC and other government agencies on which the combined organization's operations may rely, including those that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable.

Disruptions at the FDA and other agencies may also slow the time necessary for new drugs to be reviewed and/or approved by necessary government agencies, which would adversely affect NeuroBo's business. For example, over the last several years the U.S. government has shut down several times and certain regulatory agencies, such as the FDA and the SEC, have had to furlough critical FDA, SEC and other government employees and stop critical activities. If a prolonged government shutdown occurs, it could significantly impact the ability of the FDA to timely review and process NeuroBo's regulatory submissions, which could have a material adverse effect on NeuroBo's business. Further, upon completion of the merger and in NeuroBo's operations as a public company, future government shutdowns could impact NeuroBo's ability to access the public markets and obtain necessary capital in order to properly capitalize and continue its operations.

## CAUTIONARY STATEMENT CONCERNING FORWARD-LOOKING STATEMENTS

This proxy statement/prospectus/information statement contains forward-looking statements (including within the meaning of Section 21E of the United States Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 27A of the Securities Act) concerning Gemphire, NeuroBo, the proposed merger and other matters. These forward-looking statements are based on current expectations and beliefs and involve numerous risks and uncertainties that could cause actual results to differ materially from expectations. These forward-looking statements should not be relied upon as predictions of future events as Gemphire and NeuroBo cannot assure you that the events or circumstances reflected in these statements will be achieved or will occur. You can identify forward-looking statements by the use of forward-looking terminology including "believes," "expects," "may," "will," "should," "seeks," "intends," "plans," "pro forma," "estimates," or "anticipates" or the negative of these words and phrases or other variations of these words and phrases or comparable terminology. All statements other than statements of historical fact are statements that could be deemed forward-looking statements. Actual results could differ materially from those contained in any forward-looking statement as a result of various factors, including, without limitation:

- the merger consideration may have greater or lesser value at the Closing than at the time the Merger Agreement is signed because the Exchange Ratio is not adjustable based on the market price of Gemphire common stock;
- failure to complete the merger may result in either party paying a termination fee or expenses to the other party and could harm the future business and operations of each company;
- if the conditions to the merger are not met, including failure to timely or at all obtain stockholder approval for the merger, the merger may not occur;
- the timing of the consummation of the merger is uncertain as is the ability of each of Gemphire and NeuroBo to consummate the merger;
- the merger may be completed even though material adverse changes may occur;
- Gemphire may not be able to correctly estimate its operating expenses and its expenses associated with the merger;
- Gemphire may not be able to maintain its Nasdaq listing until the Closing;
- as a result of any adjustments in the Exchange Ratio, Gemphire Stockholders or NeuroBo Stockholders may own more or less of the combined company than is currently anticipated;
- executive officers and directors of each company have interests in the merger that are different from yours, which may cause them to support or approve the merger without regard to your interests;
- the market price of Gemphire common stock may decline following the merger;
- conditions to payment under the CVRs may not be met and the CVRs may never deliver any value to the Gemphire Stockholders;
- restrictions in the Merger Agreement may prevent Gemphire and NeuroBo from entering into a business combination with another party at a favorable price;
- certain provisions of the Merger Agreement may discourage third parties from submitting alternative takeover proposals, including proposals that may be superior to the arrangements contemplated by the Merger Agreement;

- the NeuroBo Stockholders may receive consideration in the merger that is greater or less than the fair market value of the NeuroBo shares due to the lack of a public market for NeuroBo shares;
- if the merger qualifies as neither a tax-free contribution nor a reorganization for U.S. federal income tax purposes, the receipt of Gemphire common stock pursuant to the merger could be fully taxable to all NeuroBo Stockholders;
- the combined organization may never earn a profit;
- the combined organization will be subject to the uncertainties associated with the clinical development and regulatory approval of its product candidates including potential delays in the commencement, enrollment and completion of clinical trials and that the results of prior clinical trials may not be predictive of future results;
- the combined organization will be required to raise additional funds to finance its operations and remain a going concern and may be required to do so sooner than it expects;
- the combined organization may not be able to raise additional funds when necessary, and/or on acceptable terms;
- the combined organization's small public float, low market capitalization, limited operating history, and lack of revenue may make it difficult and expensive for the combined organization to raise additional funds;
- the pro forma combined financial statements may not be an indication of the combined organization's financial condition or results of operations following the completion of the merger and the transactions contemplated thereby;
- Gemphire and NeuroBo may not be able to protect their respective intellectual property rights;
- there may be changes in expected or existing competition for the combined company's product candidates;
- the merger will result in changes to the combined organization's board of directors that may affect the combined organization's business strategy and operations;
- both companies expect the price of the combined organization's common stock may be volatile and may fluctuate substantially following the merger and the transactions contemplated thereby;
- if the combined organization were to be delisted from Nasdaq, it could reduce the visibility, liquidity and price of its common stock;
- a significant portion of the combined organization's total outstanding shares of common stock may be sold into the public market at any point, which could cause the market price of the combined organization's common stock to drop significantly, even if the combined organization is doing well;
- there may be adverse reactions or changes in business relationships resulting from announcement or completion of the merger;
- the combined organization will have broad discretion in the use of its cash reserves and may not use them effectively;
- the combined organization will be an "emerging growth company," and the reduced disclosure requirements applicable to such companies may make the combined organization's common stock less attractive to investors;

- the combined organization expects to continue to incur increased costs as a result of operating as a public company, and its management will be required to devote substantial time to compliance initiatives and corporate governance practices;
- the combined organization does not anticipate paying any cash dividends on its capital stock in the foreseeable future;
- provisions in the combined organization's certificate of incorporation, its bylaws or Delaware law might discourage, delay or prevent a change in control of the company or changes in its management, which may depress the price of its common stock; and
- securities analysts' published reports could cause a decline in the price of the combined organization's stock.

The foregoing risks should not be construed as exhaustive and should be read in conjunction with statements that are included herein and elsewhere. Gemphire and NeuroBo can give no assurance that the conditions to the merger will be satisfied. For further discussion of the factors that may cause Gemphire, NeuroBo or the combined organization's actual results, performance or achievements to differ materially from any future results, performance or achievements expressed or implied in such forward-looking statements, or for a discussion of risks associated with the ability of Gemphire and NeuroBo to complete the merger and the effect of the merger on the business of Gemphire, NeuroBo and the combined organization, see the section entitled "*Risk Factors"* in this proxy statement/prospectus/information statement.

Additional factors that could cause actual results to differ materially from those expressed in the forward-looking statements are discussed in reports filed with the SEC by Gemphire. See the section entitled "*Where You Can Find More Information*" of this proxy statement/prospectus/information statement.

**If any of these risks or uncertainties materialize or any of these assumptions prove incorrect, the results of operations of Gemphire, NeuroBo or the combined organization could differ materially from the forward-looking statements. All forward-looking statements in this proxy statement/prospectus/information statement are current only as of the date of this proxy statement/prospectus/information statement. Gemphire and NeuroBo do not undertake any obligation to publicly update any forward-looking statement to reflect events or circumstances after the date on which any statement is made, the occurrence of unanticipated events or any new information that becomes available in the future.**

## THE ANNUAL MEETING OF GEMPHIRE STOCKHOLDERS

### Date, Time and Place

The Gemphire annual meeting will be held on Friday, December 6, 2019, at 315 East Eisenhower Parkway, Suite 100, Ann Arbor, Michigan 48108 commencing at 8:00 a.m. Eastern time. Gemphire is sending this proxy statement/prospectus/information statement to Gemphire Stockholders in connection with the solicitation of proxies by the Gemphire Board for use at the Gemphire annual meeting and any adjournments or postponements of the Gemphire annual meeting. This proxy statement/prospectus/information statement is first being furnished to Gemphire Stockholders on or about , 2019.

### Purposes of the Gemphire Annual Meeting

The purposes of the Gemphire annual meeting are:

1. To approve the issuance of Gemphire common stock to NeuroBo Stockholders pursuant to the Merger Agreement, a copy of which is attached as *Annex A* to this proxy statement/prospectus/information statement, and the change of control of Gemphire resulting from the merger under Nasdaq rules.

2. To approve an amendment to the Gemphire Certificate of Incorporation to effect a reverse stock split of Gemphire common stock, within a range, as determined by the Gemphire Board, of one new share for every 15 to 25 (or any number in between) shares outstanding (the "Gemphire Reverse Stock Split") in the form attached as *Annex B* to this proxy statement/ prospectus/information statement.

3. To approve the amendment to the Gemphire Certificate of Incorporation to effect the Gemphire Name Change, in the form attached as *Annex C* to this proxy statement/prospectus/information statement.

4. To approve the adoption of the Gemphire 2019 Plan, in the form attached as *Annex D* to this proxy statement/prospectus/information statement.

5. To elect two nominees for Class III directors named in the proxy statement/prospectus/information statement, each to serve a three-year term until the 2022 annual meeting of stockholders and until the election and qualification of his successor, or his earlier death, resignation or removal (provided that, if the merger is completed, the board of directors will be reconstituted as provided in the Merger Agreement).

6. To ratify the appointment of Ernst & Young LLP as Gemphire's independent registered public accounting firm for the fiscal year ending December 31, 2019 (provided, however, that it is likely that the combined company may decide to engage a new independent registered public accounting firm immediately or shortly after the merger is completed).

7. To consider and vote upon an adjournment of the Gemphire annual meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of Proposal Nos. 1, 2, 3 or 4.

8. To transact such other business as may properly come before the Gemphire annual meeting or any adjournment or postponement thereof.

### Recommendation of the Gemphire Board

- The Gemphire Board has determined that the issuance of Gemphire common stock to NeuroBo Stockholders pursuant to the Merger Agreement and the change of control of Gemphire resulting from the merger are fair to, advisable and in the best interest of Gemphire and Gemphire Stockholders and has approved such items. The Gemphire Board recommends that

Gemphire Stockholders vote "FOR" Proposal No. 1 to approve the issuance of Gemphire common stock to NeuroBo Stockholders and the change of control of Gemphire resulting from the merger.

- The Gemphire Board has determined that the Gemphire Reverse Stock Split is fair to, advisable and in the best interest of Gemphire and Gemphire Stockholders and has approved the Gemphire Reverse Stock Split. The Gemphire Board recommends that Gemphire Stockholders vote "FOR" Proposal No. 2 to approve an amendment to the Gemphire Certificate of Incorporation effecting the Gemphire Reverse Stock Split.

- The Gemphire Board has determined that the Gemphire Name Change is fair to, advisable and in the best interest of Gemphire and its stockholders and has approved the Gemphire Name Change. The Gemphire Board recommends that Gemphire Stockholders vote "FOR" Proposal No. 3 to approve an amendment to the Gemphire Certificate of Incorporation effecting the Gemphire Name Change.

- The Gemphire Board has determined that the adoption of the Gemphire 2019 Plan is fair to, advisable and in the best interests of Gemphire and Gemphire Stockholders and has approved the Gemphire 2019 Plan. The Gemphire Board recommends that Gemphire Stockholders vote "FOR" Proposal No. 4 to approve the Gemphire 2019 Plan.

- The Gemphire Board recommends that Gemphire Stockholders vote "FOR" the election of each of Pedro Lichtinger and Andrew Sassine as Class III directors (Proposal No. 5).

- The Gemphire Board has determined that the ratification of the appointment of Ernst & Young LLP as Gemphire's independent registered public accounting firm for the fiscal year ending December 31, 2019 is fair to, advisable and in the best interests of Gemphire and Gemphire Stockholders. The Gemphire Board recommends that Gemphire Stockholders vote "FOR" Proposal No. 6 to ratify the appointment of Ernst & Young LLP as Gemphire's independent registered public accounting firm for the fiscal year ending December 31, 2019.

- The Gemphire Board has determined and believes that adjourning the Gemphire annual meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of Proposal Nos. 1, 2, 3 or 4 is advisable and in the best interests of Gemphire and Gemphire Stockholders and has approved and adopted the proposal. The Gemphire Board recommends that Gemphire Stockholders vote "FOR" Proposal No. 7 to adjourn the Gemphire annual meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of Proposal Nos. 1, 2, 3 or 4.

Gemphire Stockholders should understand, however, that if the merger with NeuroBo is completed, the effect of the approval of Proposal Nos. 5 and 6 will be limited because the composition of the Gemphire Board will be changed upon the completion of the merger in accordance with the Merger Agreement, and it is likely that the combined organization may decide to engage a new registered public accounting firm.

**Record Date and Voting Power**

Only holders of record of Gemphire common stock at the close of business on the Record Date, October 31, 2019, are entitled to notice of, and to vote at, the Gemphire annual meeting. There were 54 holders of record of Gemphire common stock at the close of business on the Record Date. At the close of business on the Record Date, 14,872,411 shares of Gemphire common stock were issued and outstanding. Each share of Gemphire common stock entitles the holder thereof to one vote on each matter submitted for stockholder approval. See the section entitled "*Principal Stockholders of Gemphire*" in this proxy statement/prospectus/information statement for information regarding persons

known to Gemphire's management to be the beneficial owners of more than 5% of the outstanding shares of Gemphire common stock.

**Voting and Revocation of Proxies**

The proxy accompanying this proxy statement/prospectus/information statement is solicited on behalf of the Gemphire Board for use at the Gemphire annual meeting.

If you are a stockholder of record of Gemphire as of the Record Date referred to above, you may vote in person at the Gemphire annual meeting or vote by proxy. Whether or not you plan to attend the Gemphire annual meeting, Gemphire urges you to vote by proxy to ensure your vote is counted. You may still attend the Gemphire annual meeting and vote in person if you have already voted by proxy. As a stockholder of record you may vote in any of the following ways:

- to vote in person, attend the Gemphire annual meeting and Gemphire will provide you a ballot when you arrive.
- to vote using the proxy card, simply mark, sign and date your proxy card and return it promptly in the postage-paid envelope provided. If you return your signed proxy card to Gemphire before the Gemphire annual meeting, Gemphire will vote your shares as you direct on the proxy card.
- to vote by telephone or on the Internet, dial the number on the proxy card or visit the website on the proxy card form to complete an electronic proxy card. You will be asked to provide Gemphire's number and control number from the enclosed proxy card. Your vote must be received by 11:59 p.m., Eastern time on December 5, 2019 to be counted.

If your shares of Gemphire common stock are held by your broker, bank or other nominee, that is, in "street name," you will receive a voting instruction card from the institution that holds your shares. Please follow the instructions included on that voting instruction card regarding how to instruct your broker, bank or other nominee to vote your shares of Gemphire common stock. If you are a beneficial owner you may not vote your shares in person at the Gemphire annual meeting unless you obtain a legal proxy from your broker, bank or other nominee. If you do not give instructions to your broker, bank or other nominee, your broker can vote your shares of Gemphire common stock with respect to "discretionary" items but not with respect to "non-discretionary" items. Discretionary items are proposals considered routine under certain rules applicable to brokers and on which your broker may vote shares held in "street name" in the absence of your voting instructions. On non-discretionary items for which you do not give your broker instructions, your shares of Gemphire common stock will be treated as broker non-votes. It is anticipated that Proposal Nos. 1, 4 and 5 will be non-discretionary. To make sure that your vote is counted, you should instruct your broker to vote your shares, following the procedures provided by the institution that holds your shares.

Gemphire Stockholders of record, other than those Gemphire stockholders who have executed voting agreements, may change their vote at any time before their proxy is voted at the Gemphire annual meeting in one of three ways. First, a Gemphire Stockholders of record can send a written notice to the Secretary of Gemphire stating that the stockholder would like to revoke its proxy. Second, a Gemphire Stockholders of record can submit new proxy instructions either on a new proxy card or by telephone or via the Internet. Third, a Gemphire Stockholders of record can attend the Gemphire annual meeting and vote in person. Attendance alone will not revoke a proxy. If a stockholder who owns shares of Gemphire common stock in "street name" has instructed a broker to vote its shares of Gemphire common stock, the stockholder must follow directions received from its broker to change those instructions.

All properly executed proxies that are not revoked will be voted at the Gemphire annual meeting and at any adjournments or postponements of the Gemphire annual meeting in accordance with the instructions contained in the proxy. If a holder of Gemphire common stock executes and returns a

proxy and does not specify otherwise, the shares represented by that proxy will be voted "FOR" Proposal No. 1 to approve the issuance of shares of Gemphire common stock to NeuroBo Stockholders pursuant to the Merger Agreement and the change of control resulting from the merger; "FOR" Proposal No. 2 to approve an amendment to the Gemphire Certificate of Incorporation effecting the Gemphire Reverse Stock Split; "FOR" Proposal No. 3 to approve an amendment to the Gemphire Certificate of Incorporation to effect the Gemphire Name Change; "FOR" Proposal No. 4 to approve the adoption of the Gemphire 2019 Plan; "FOR" each of the nominees for Class III directors; "FOR" Proposal No. 6 to ratify the appointment of Gemphire's independent registered accounting firm; and "FOR" Proposal No. 7 to approve the adjournment of the Gemphire annual meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of Proposal Nos. 1, 2, 3 or 4 in accordance with the recommendation of the Gemphire Board.

**Required Vote**

The presence, in person or by proxy, of the holders of a majority of the outstanding shares of Gemphire common stock entitled to vote at the Gemphire annual meeting is necessary to constitute a quorum at the meeting. Abstentions and broker non-votes will be counted towards a quorum. Approval of Proposal Nos. 1, 4, 6 and 7 requires the affirmative vote of the holders of a majority of the shares of Gemphire common stock present in person or represented by proxy at the Gemphire annual meeting and entitled to vote on the matter. Approval of Proposal Nos. 2 and 3 requires the affirmative vote of holders of a majority of Gemphire common stock outstanding on the Record Date for the Gemphire annual meeting and entitled to vote on the matter. Directors will be elected by a plurality of the votes of shares present in person or represented by proxy at the meeting and entitled to vote on the election of directors, which means the two nominees receiving the most "FOR" votes will be elected.

Votes will be counted by the inspector of election appointed for the Gemphire annual meeting, who will separately count "FOR", "AGAINST" and "WITHHOLD" votes, abstentions and broker non-votes. "WITHHOLD" votes with respect to the election of one or more nominees for director pursuant to Proposal No. 5 will not be voted with respect to the director or directors indicated, although they will be counted for purposes of determining the presence of a quorum for the transaction of business at the Gemphire annual meeting. Abstentions will be counted towards the vote total and will have the same effect as "AGAINST" votes for Proposal Nos. 1, 2, 3, 4, 6, and 7. Proposal Nos. 2, 3, 6, and 7 are matters on which Gemphire expects brokers, banks or other nominees to have discretionary authority and, therefore, broker non votes are not expected with respect to these proposals. Broker non-votes will have no effect on the outcome of Proposal Nos. 1, 4, and 5.

Proposal No. 1 is conditioned upon the approval of Proposal No. 2, and the merger cannot be consummated without the approval of Proposal Nos. 1 and 2. Proposal Nos. 3 and 4 are conditioned upon the consummation of the merger. If the merger is not completed or the Gemphire Stockholders do not approve Proposal No. 3, Gemphire will not change its name to "NeuroBo Pharmaceuticals, Inc.". If the merger is not completed or the Gemphire Stockholders do not approve Proposal No. 4, the Gemphire 2019 Plan will not become effective. Proposal No. 1 is not conditioned on Proposal No. 3 or Proposal No. 4 being approved, and Proposal Nos. 2, 5 and 6 are not conditioned on any other proposal.

As of September 30, 2019 the directors and executive officers of Gemphire and other Gemphire Stockholders who signed voting agreements beneficially owned approximately 26% of the outstanding shares of Gemphire common stock entitled to vote at the Gemphire annual meeting. Pursuant to the voting agreements, each such director, executive officer and other signatory Gemphire Stockholder has agreed to be present (in person or by proxy) at the Gemphire annual meeting to vote all shares of Gemphire common stock owned by him, her or it as of the Record Date in favor of Proposals Nos. 1, 2, 3 and 4. Additionally, each such stockholder has agreed, solely in his, her or its capacity as a stockholder of Gemphire, to vote against any competing acquisition proposal and any action, proposal

or transaction that would reasonably be expected to result in a material breach of the voting agreement.

**Solicitation of Proxies**

In addition to solicitation by mail, the directors, officers, employees and agents of Gemphire may solicit proxies from Gemphire Stockholders by personal interview, telephone, telegram or otherwise. Gemphire and NeuroBo will share equally the costs of printing and filing this proxy statement/prospectus/information statement and proxy card. Arrangements will also be made with brokerage firms and other custodians, nominees and fiduciaries who are record holders of Gemphire common stock for the forwarding of solicitation materials to the beneficial owners of Gemphire common stock. Gemphire will reimburse these brokers, custodians, nominees and fiduciaries for the reasonable out-of-pocket expenses they incur in connection with the forwarding of solicitation materials. Gemphire has engaged The Proxy Advisory Group, LLC to assist in the solicitation of proxies and provide related advice and informational support, for a services fee and the reimbursement of customary disbursements, which are not expected to exceed $20,000 in total.

**Other Matters**

As of the date of this proxy statement/prospectus/information statement, the Gemphire Board does not know of any business to be presented at the Gemphire annual meeting other than as set forth in the notice accompanying this proxy statement/prospectus/information statement. If any other matters should properly come before the Gemphire annual meeting, it is intended that the shares represented by proxies will be voted with respect to such matters in accordance with the judgment of the persons voting the proxies.

## THE MERGER

*This section and the section entitled "The Merger Agreement" in this proxy statement/prospectus/information statement describe the material aspects of the merger, including the Merger Agreement. While Gemphire and NeuroBo believe that this description covers the material terms of the merger and the Merger Agreement, it may not contain all of the information that is important to you. You should read carefully this entire proxy statement/prospectus/information statement for a more complete understanding of the merger and the Merger Agreement, including the Merger Agreement attached as Annex A, the opinion of Ladenburg Thalmann attached as Annex E, and the other documents to which you are referred herein. See the section entitled "Where You Can Find More Information" in this proxy statement/prospectus/information statement.*

### Background of the Merger

The following is a summary of the background of the events leading up to the decision by Gemphire to engage in a strategic transaction, the process undertaken by Gemphire to identify and evaluate prospective transactions and partners, and the negotiation of the Merger Agreement with NeuroBo.

Gemphire is a clinical-stage biopharmaceutical company focused on developing and commercializing therapies for the treatment of dyslipidemia, a serious medical condition that increases the risk of life-threatening cardiovascular disease, focused on orphan indications, as well as nonalcoholic fatty liver disease/nonalcoholic steatohepatitis (NAFLD/NASH). Gemphire has focused its historical efforts on developing its sole product candidate, gemcabene, for treatment of dyslipidemias where patients are unable to reach their lipid lowering goals, including patients already receiving maximally tolerated statin therapy. The FDA has identified gemcabene as a PPAR agonist and issued a partial clinical hold, which permits human clinical trials of up to six months for gemcabene and required the completion of two-year rat and mouse carcinogenicity trials before conducting clinical trials of longer than six months. In 2018, Gemphire completed and submitted to the FDA the results from its two-year rodent carcinogenicity studies.

On August 6, 2018, Gemphire announced that, in response to its submission, the FDA did not lift the partial clinical hold, requested that Gemphire produce data from two preclinical studies (namely, a subchronic (13 week) study of gemcabene in PPARa knock-out mice and a study of gemcabene in *in vitro* PPAR transactivation assays using monkey and canine PPAR isoforms) to provide information to support lifting the partial clinical hold on gemcabene with respect to clinical trials of longer than six months in duration and informed Gemphire that the end-of-phase 2 meeting, and consequently the initiation of Phase 3 trials investigating gemcabene in dyslipidemia indications and long-term safety exposure trials needed for registration, will not take place until the partial hold has been lifted. On August 6, 2018, Gemphire also announced that, on August 2, 2018, Gemphire amended and restated its license agreement with Pfizer covering gemcabene to, among other things, extend the timeframe to commercialization such that Pfizer may terminate the license if the first commercial sale of gemcabene has not occurred by April 2024 (such right was previously triggered if gemcabene was not "adequately commercialized" by April 2021) and on July 31, 2018 amended its loan agreement with SVB, (as amended, the "Loan Agreement") to, among other things, extend certain dates related to the interest-only payment period and the requirement to provide cash security or prepay the loan and the availability of an undrawn tranche.

On August 10, 2018, Gemphire announced that the Data and Safety Monitoring Board (DSMB) at Emory University School of Medicine overseeing the investigator-led open label Phase 2a proof-of-concept trial evaluating gemcabene in pediatric patients with non-alcoholic fatty liver disease (NAFLD) recommended that the trial be terminated due to unanticipated increases in liver fat content, as measured by MRI-PDFF, and demonstrated increases in ALT in the first three patients who underwent 12 weeks of treatment. Gemphire further announced on that date that, following the

termination of the pediatric NAFLD trial, the principal investigator for the Phase 2a study to assess the efficacy and safety of two dosing regimens of gemcabene in patients with familial partial lipodystrophy (FPL) determined to closely monitor the first three patients in this study while waiting for MRI-PDFF scans to be reviewed at an interim time point before dosing additional patients. On August 13, 2018, Gemphire reported its second quarter 2018 financial results.

Gemphire's development plans and ability to raise additional funds to support the further development of gemcabene were severely harmed by the FDA's decision not to lift the partial clinical hold on gemcabene and to request that Gemphire provide additional data as well as the termination of the investigator initiated Phase 2a pediatric NAFLD trial, each described above. Following the above announcements, Gemphire's management, the Gemphire Board and the compensation committee of the Gemphire Board (the "Gemphire Compensation Committee") engaged in discussions regarding potential measures to preserve cash. Also, in August, September and October of 2018, management and board members of Gemphire initiated confidential outbound inquiries to certain private companies to explore potential acquisition or in-licensing opportunities. In addition, two inbound inquiries were received. After conversations with approximately ten companies, two in particular, Parties A and B, appeared to be promising opportunities for a potential merger because they appeared capable of raising capital, their products addressed large unmet needs, and they had the potential to secure pharmaceutical company partnerships.

On August 20, 2018, the Chief Executive Officer of Party B contacted Dr. Gullans by email and inquired about a potential merger. The two companies signed a confidentiality agreement on August 24, 2018. On September 6, 2018, Dr. Gullans met with Party B's Chief Executive Officer, a board member of Party B, and Party B's financial advisor. In connection with early due diligence activities, Party B's Chief Executive Officer visited Gemphire's headquarters on September 26, 2018.

In September and October 2018, multiple conference calls were held with Party B to discuss potential merger plans including corporate synergies related to products, operations, and teams.

The Gemphire Board held a regular meeting on September 18, 2018 during which the Gemphire Board and members of management discussed possible strategic alternatives, including global strategic partnership and licensing opportunities, reviewed and discussed due diligence materials on a potential in-licensing/acquisition opportunity with Party B and its product candidate, authorized management to continue to engage in due diligence activities with such party and approved the reduction in force described below.

On September 24, 2018, Gemphire announced a reduction of approximately 33% of its workforce.

On October 2, 2018, Dr. Gullans met in person with two members of senior management from Party A. Gemphire and Party A executed a mutual non-disclosure agreement effective October 16, 2018. On October 25, 2018, Dr. Gullans visited Party A's headquarters to learn more about Party A's product candidate, team, and financial status. On October 30, 2018 and November 2, 2018, members of Gemphire's management met telephonically with members of Party A's management, together with representatives of Honigman LLP ("Honigman"), outside counsel to Gemphire, and representatives of outside counsel to Party A, for initial discussions regarding a potential transaction between Gemphire and Party A. From October 16, 2018 to November 30, 2018, Dr. Gullans spoke by phone with Party A seven times and exchanged numerous emails related to a potential merger.

On November 2, 2018, Party B was informed by phone that Gemphire was planning to hire a banker to lead the strategic initiative and that Gemphire would advise its banker to include Party B in the formal process.

On November 6, 2018, Gemphire Board member, Kenneth Kousky, visited the headquarters of Party A to meet with members of management.

Over the past several years, Gemphire has had various discussions regarding outlicensing and partnership opportunities with pharmaceutical companies around the world, but these pharmaceutical companies paused their discussions with Gemphire following the August 2018 announcement regarding the partial clinical hold.

During 2018, the Chinese health authorities began allowing reciprocity of more clinical FDA documents, recognizing HoFH as orphan indication, allowing the use of imported clinical drug supply (i.e., gemcabene) through the entire clinical trials process, including Phase 3 trials, to achieve an NDA in China, and improved intellectual property protection for drugs addressing an orphan disease. This improved regulatory environment provided the rationale for Gemphire to pursue an opportunity to out-license gemcabene in China with a strategic partner and open conversations with Beijing SL in October 2018. The parties executed a mutual confidentiality agreement on October 26, 2018. Gemphire management had their first visit to Beijing SL in China in November 2018 to discuss the opportunity to develop gemcabene for the China market across a number of indications. Prior to Gemphire's first visit with Beijing SL, members of the Gemphire management team had been introduced to Dr. Xu, Beijing SL's Chief Executive Officer, during a meeting at the University of Michigan in late fall of 2017.

During November 2018, Gemphire management engaged in discussions with three investment banking firms regarding their engagement as a financial advisor to assist Gemphire in conducting a review of strategic alternatives. On November 7, 2018, members of Gemphire's management and representatives of Honigman had a telephonic conversation with representatives of Ladenburg Thalmann, regarding such strategic review.

On November 8, 2018, in connection with the announcement of its financial results for the third quarter of 2018, Gemphire announced that additional patients had been enrolled in the FPL trial, with top-line data expected in the second quarter of 2019. This announcement followed an interim safety review by the DSMB at the University of Michigan of the first three patients, who would be closely monitored by the principal investigator of the trial, including by MRI-PDFF scans to be reviewed at interim time points. Gemphire also confirmed that its immediate priority was to work closely with the FDA to release the partial clinical hold on gemcabene, with the goal of proceeding to an End of Phase 2 meeting and reaching agreement on the design of a Phase 3 clinical program.

On November 12, 2018, considering, among other things, that one Gemphire Board member was an affiliate of a company expected to participate in the strategic alternatives review process and the interests in a potential transaction of Dr. Gullans and Dr. Bisgaier due to their roles as officers of Gemphire, the Gemphire Board approved the establishment of a committee (the "Transaction Committee") consisting of directors Kenneth W. Kousky and Pedro Lichtinger, both independent and disinterested directors of Gemphire, with the authority to exercise all rights and powers of the Gemphire Board, to the fullest extent permitted by the DGCL, tasked with overseeing the review, evaluation and negotiation of a potential transaction and all alternatives thereto. The Transaction Committee was formed to assist the Gemphire Board in coordinating the review of a range of strategic alternatives focused on maximizing stockholder value and make recommendations to the Gemphire Board concerning a potential transaction.

On November 15, 2018, an initial organizational meeting of the Transaction Committee was held with members of management and representatives of Honigman, during which a representative of Honigman discussed the role, powers and fiduciary duties of the Transaction Committee and management presented an update regarding recent meetings with potential financial advisors.

Between November 15 and November 27, 2018, members of the Transaction Committee, management and representatives of Honigman met telephonically with representatives of potential financial advisors and reviewed drafts of engagement letters.

On November 27, 2018, the Transaction Committee met telephonically with members of management and representatives of Honigman to review proposals and presentations received from multiple potential financial advisors. After discussing the qualifications of each of the potential financial advisors, the Transaction Committee determined to engage Ladenburg Thalmann to act as financial advisor to Gemphire because of their experience with transactions involving life sciences companies, particularly their recent experience with reverse merger transactions involving life science companies. On November 28, 2018, Gemphire executed an engagement letter with Ladenburg Thalmann to formally engage Ladenburg Thalmann to provide financial advisory services in connection with Gemphire's review of strategic alternatives, and to conduct a broad market search to identify and reach out to suitable merger candidates.

On November 30, 2018, Gemphire received an initial draft of a proposed term sheet for a merger transaction from Party A.

On December 3, 2018, Gemphire publicly announced that the Gemphire Board was conducting a review of a range of strategic alternatives focused on maximizing stockholder value, the engagement of Ladenburg Thalmann to act as its strategic financial advisor and the creation of the Transaction Committee to oversee this process.

On December 4, 2018, at a telephonic meeting of the Transaction Committee, Ladenburg Thalmann recommended a process to identify potential counterparties, starting with Ladenburg Thalmann issuing a process letter to third party candidates to solicit non-binding indications of interest, which were to include certain information regarding such candidate's business, the proposed transaction structure, sources of financing, and detailed support for such candidate's valuation, among other items.

Following the receipt of such indications of interest from candidates, the Transaction Committee would review and select a subset of candidates to progress to in-person presentations to members of the Transaction Committee so that the Transaction Committee could select a finalist with which to negotiate a definitive agreement.

On December 6, 2018, a meeting of the Gemphire Board was held, which Gemphire management and representatives from Ladenburg Thalmann and Honigman attended. The purpose of this meeting was to provide an update on the state of Gemphire's business, including progress related to its ongoing clinical and development activities. Dr. Gullans explained the risks of Gemphire's current stand-alone strategy, including the lack of news expected regarding gemcabene during fiscal 2019 other than the expected announcement of the results of the investigator-led FPL trial, and Gemphire's need for fundraising in 2019 to continue the development of gemcabene and complete the preclinical studies requested by the FDA in connection with Gemphire's request to lift the partial clinical hold on gemcabene. Representatives of Ladenburg Thalmann provided the Gemphire Board with an overview of the planned process for outreach to potential strategic partners. Mr. Reno, Gemphire's Chief Commercial Officer, presented to the Gemphire Board regarding potential terms of the engagement of Torreya Partners, LLC ("Torreya") as Gemphire's advisor in connection with a potential licensing of Gemphire's intellectual property rights to gemcabene in China, which Gemphire's Board and management had previously been considering and discussing in response to recent regulatory changes in China, and the Gemphire Board approved the engagement of Torreya. The engagement letter between Gemphire and Torreya was executed effective December 12, 2018.

On December 7, 2018, certain members of Gemphire's management and the Gemphire Board, including the members of the Transaction Committee, met with members of Party A's management at Party A's offices to further discuss a potential merger transaction between the two companies. At this meeting, the senior management of Party A gave a presentation describing Party A's product pipeline, research and development activities, intellectual property position, operations, and financing history and plans.

Beginning on December 8, 2018, Ladenburg Thalmann began broad outreach to potential merger candidates, which included outreach to 216 parties, and asked that proposals be submitted by interested candidates by January 11, 2019. Ladenburg Thalmann also contacted investors and service providers, including venture capital firms, securities lawyers, auditors and investor-relations firms, to garner additional interest in a transaction. Ladenburg Thalmann's outreach did not disclose Gemphire's name until the target company agreed to a form of two-way non-disclosure agreement. From December 2018 through January 2019, non-disclosure agreements were executed by 33 of the 216 candidates solicited by Ladenburg Thalmann or who had independently contacted Gemphire or Ladenburg Thalmann. The non-disclosure agreements did not include standstill provisions.

On December 11, 2018, Gemphire began to execute confidentiality agreements with potential strategic transaction partners involved in the process, and Ladenburg Thalmann began to circulate process letters, ultimately providing such letters to 24 parties.

On December 12, 2018, the Shanghai office of Cooley LLP ("Cooley Shanghai"), counsel to Gemphire in connection with a potential licensing of Gemphire's intellectual property rights to gemcabene in China, and members of Gemphire's management began preparing a non-binding term sheet for a potential transaction to out-license certain intellectual property rights to gemcabene in China. An initial draft of the term sheet with Beijing SL was provided to members of the Transaction Committee on December 17, 2018.

Gemphire sent a revised term sheet for a merger transaction to Party A on December 14, 2018.

Gemphire's strategic review included the evaluation of all reasonable options to maximize value for Gemphire Stockholders, and representatives of Ladenburg Thalmann and members of Gemphire's management reviewed modeling of various scenarios with the Transaction Committee at its meeting on December 12, 2018, including: the potential sale, spin-off or licensing of gemcabene, completing an equity financing of Gemphire, liquidating Gemphire and distributing any remaining cash to stockholders, and a possible business combination with a complementary company, including a merger with a privately-held life sciences company, with Gemphire stock being the consideration in the transaction. The Transaction Committee believed that Gemphire had an opportunity to deliver value to its stockholders if it could identify and select a high-quality private life sciences company as a merger partner. The Transaction Committee met again on December 18, 2018 primarily to discuss the process letter to be sent by Ladenburg Thalmann to the parties that remained active in the process and the initial draft of the potential term sheet with Beijing SL.

On December 27, 2018, at a telephonic meeting of the Transaction Committee, Dr. Gullans provided an update regarding recent conversations with Party B and informed the Committee of receipt of an inbound inquiry from Party C on December 19, 2018. Following the meeting, Party C was introduced to Ladenburg Thalmann to become part of the strategic review process.

On December 30, 2018, Gemphire received a revised term sheet for a merger transaction from Party A, and, on January 3, 2019, the Transaction Committee met telephonically to discuss the revised term sheet for a merger transaction with Party A and the valuation modeling prepared by the investment bank representing Party A.

Members of Gemphire's management team met with members of management of three potential merger candidates, including Party A and Party B, between January 6 and January 9, 2019, in San Francisco during the J.P. Morgan Healthcare Conference. On January 15, 2019 and January 22, 2019, the Transaction Committee held telephonic meetings, during which representatives of Ladenburg Thalmann provided updates regarding the receipt of formal proposals and additional participants who had noted that they intended to submit proposals. Following outreach to 216 companies and to other parties, such as venture capital firms, institutional investors, consultants, lawyers, bankers and investor relations firms, to determine whether those other parties could recommend any potential transaction

partners for Gemphire, Ladenburg Thalmann sent formal process letters to 24 companies and, between January 11, 2019 and January 22, 2019, 11 companies, including Parties A, B and C, had submitted proposals indicating an interest in a transaction with Gemphire.

On January 11, 2019, Gemphire sent an initial draft of a term sheet to Beijing SL.

On January 17, 2019, members of Gemphire's management and representatives of Party A's investment banker met telephonically to discuss valuation.

On January 23, 2019, members of Gemphire's management and representatives of Ladenburg Thalmann first met in New York to review the proposals received in detail, with follow-up telephonic meetings occurring on January 28 and 29, 2019.

On January 29, 2019, the Transaction Committee met telephonically to review the candidate finalists from the bid process that would be giving presentations to the Transaction Committee on January 31, 2019 and the approach that Ladenburg Thalmann and Gemphire had followed in evaluating the proposals received. Later that day, representatives of Ladenburg Thalmann and members of Gemphire's management shared with the members of the Transaction Committee a presentation regarding such candidate finalists including Party A, which materials included the list of candidates that provided proposals to Gemphire and the four candidates, which included Party A but not Party B or C, that had been selected by Gemphire management, in consultation with Ladenburg Thalmann, as finalists. Members of the Transaction Committee also received copies of the full proposals submitted by the finalists and information regarding all 11 of the final proposals received.

Starting on January 29, 2019, and throughout the next week, Ladenburg Thalmann engaged in discussions with each of the finalists via telephone to provide responses to diligence questions regarding Gemphire.

On January 31, 2019, each of the candidate finalists, other than Party A, who previously met with the Transaction Committee, made a 90-minute in-person management presentation to Gemphire's management team, the Transaction Committee and representatives from Ladenburg Thalmann at Ladenburg Thalmann's offices in New York, New York. Ladenburg Thalmann requested that each presentation cover the terms of their indications of interest, including valuation, financing plans and relative post-closing stock ownership percentages and cover detailed information about the candidate finalist. The purpose of the meetings was to evaluate the four candidate finalists and select from among them one candidate with which to negotiate an exclusive non-binding term sheet.

Following the candidate presentations, on January 31, 2019, the Transaction Committee, Gemphire management and representatives of Ladenburg Thalmann engaged in an extensive discussion regarding each of the candidates and unanimously agreed that, at this time, it would not be in the best interests of Gemphire Stockholders to continue to evaluate three of the candidates in the process, given the determination by the participants in the discussion that a business combination with such candidates would not be as likely to create long-term stockholder value as a transaction with Party A for various reasons, including the quality of each candidate's product pipelines, likelihood of securing a validating pharmaceutical partnership, the quality of such candidate's investor base and such candidate's ability to finance the development of its product as well as support gemcabene. The meeting participants, on the other hand, were unanimously in favor of advancing discussions and diligence efforts with Party A, with one additional candidate from the finalists designated as a back-up candidate for potential further evaluation if the discussions with Party A did not ultimately result in a transaction.

Also on January 31, 2019, Gemphire announced the prepayment in full of all outstanding indebtedness under its Loan and Security Agreement with SVB.

On February 4, 2019, Gemphire returned a revised draft of the term sheet for a merger transaction to Party A, and Beijing SL returned comments on the draft term sheet for the Beijing SL License Agreement.

Following the meetings held on January 31, 2019, Ladenburg Thalmann informed each of the finalist candidates of the decisions of the Transaction Committee and reported to the Transaction Committee the results of those conversations during a telephonic meeting held on February 7, 2019. Gemphire subsequently continued diligence and engaged in negotiations with Party A as to proposed transaction terms. A meeting of the Transaction Committee was held on February 12, 2019 during which updates were provided on the status of term sheet negotiations with Party A and Beijing SL.

Party A and Gemphire shared access to their respective due diligence data sites beginning on February 15, 2019.

A revised draft of the term sheet for a merger transaction was received from Party A's management on February 13, 2019. The Transaction Committee met telephonically with members of Gemphire's management and representatives of Honigman and Ladenburg Thalmann on February 20, 2019 to discuss Party A's changes to the term sheet and recommended new changes, and the term sheet was approved by the Transaction Committee. Gemphire received a further revised version from Party A on February 28, 2019. Throughout February 2019, representatives of Gemphire and Party A and their legal counsel corresponded many times and held multiple telephonic meetings to discuss drafts of the term sheet as well as to conduct due diligence on a wide range of topics.

On February 28, 2019, P. Kent Hawryluk resigned from the Gemphire Board. Mr. Hawryluk's resignation was not due to any disagreement on any matter relating to Gemphire's operations, policies, or practices. The Gemphire Board then reduced its size from six to five members.

On March 1, 2019, the Transaction Committee met telephonically with Dr. Gullans and a representative of Honigman to discuss proposed revisions to the term sheet for a merger transaction received from Party A. A revised term sheet was sent to Party A on March 4, 2019 with final changes proposed by Party A on March 7, 2019. The Transaction Committee approved the draft term sheet for a merger transaction with Party A at a telephonic meeting held on March 5, 2019 with members of Gemphire's management and representatives of Ladenburg Thalmann and Honigman present.

The non-binding term sheet with Beijing SL was signed by Gemphire and Beijing SL on March 6, 2019.

Following the signing of the term sheet with Beijing SL, at the end of March 2019, Gemphire commenced discussions with Beijing SL on the terms of the definitive agreement, which took place on several occasions. Management and board members from both organizations had several internal meetings over the months of April 2019 and early May 2019 to discuss specific terms and contract language.

On March 12, 2019, March 19, 2019, March 27, 2019, April 9, 2019 and April 16, 2019, the Transaction Committee met telephonically to receive updates regarding Party A, including its progress towards an agreement with a strategic partner, and Gemphire's progress towards a definitive agreement with Beijing SL and discussed possible alternatives if the transaction contemplated with Party A was not consummated and/or a license and collaboration agreement with Beijing SL was not executed.

A regular meeting of the Gemphire Board was held on March 13, 2019. Gemphire announced fourth quarter and fiscal 2018 financial results on March 15, 2019.

Gemphire sent a first draft of the Beijing SL License Agreement, drafted in collaboration with Cooley Shanghai and Honigman, to Beijing SL on March 23, 2019.

On March 22, 2019, Gemphire announced that it received written notice from Nasdaq on March 20, 2019 that it no longer complies with the minimum stockholders' equity requirement for continued listing on the Nasdaq Global Market.

On March 24, 2019, Ladenburg Thalmann provided Gemphire's management with materials regarding potential financing scenarios for Gemphire, and the Transaction Committee members met telephonically with representatives of Ladenburg Thalmann and Honigman to discuss various financing options for Gemphire on March 29, 2019.

On April 8, 2019, a representative of NeuroBo's financial advisor, Consilium Partners LLC ("Consilium"), contacted Dr. Bisgaier regarding a potential strategic transaction involving the two companies. After being made aware of the contact from Consilium on behalf of NeuroBo, Dr. Gullans asked Ladenburg Thalmann to contact Consilium directly to facilitate further discussions between the companies. Following contact by Ladenburg Thalmann, Gemphire and NeuroBo signed a mutual, confidential non-disclosure agreement on April 17, 2019. On April 22, 2019, the Gemphire leadership team had a conference call with NeuroBo management and representatives of Consilium, to discuss synergies and the potential opportunity to merge.

On April 10 and 11, 2019, Dr. Gullans had meetings with the board of directors of Party A to discuss the status of the potential merger between the two companies.

Due diligence review of each of Gemphire and Party A by the respective counterparty and their respective advisors began in February 2019 and continued throughout March, April and May 2019. Also on April 18, 2019, Gemphire and Party A executed a Joint Defense/Common Interest Agreement in connection with sharing information regarding Party A's intellectual property portfolio.

On April 23, 2019, a telephonic meeting of the Transaction Committee was held and representatives of management, Ladenburg Thalmann and Honigman participated. During the meeting, the Transaction Committee reviewed and approved the proposed final form of the non-binding term sheet for a merger transaction with Party A, which contemplated a post-transaction ownership split of 90% held by Party A's stockholders and 10% held by Gemphire Stockholders, on a fully-diluted basis, with the Gemphire Stockholders' ownership level adjusted downward to the extent Gemphire's liabilities exceed $1.0 million such that each additional $1.0 million in liabilities would correspond with a 2.5% decrease in Gemphire Stockholders' ownership, and did not contemplate CVRs. The Transaction Committee was also informed of the inbound inquiry from NeuroBo. Following the meeting, Dr. Gullans sent the term sheet to representatives of Party A.

Also on April 23, 2019, a telephonic special meeting of the Gemphire Compensation Committee was held to discuss potential measures to preserve cash and employee retention considerations.

On April 24, 2019, representatives of Party A and representatives of Party A's IP counsel held a telephonic conference call with Gemphire's management and representatives of Honigman.

On May 2, 2019, Party A informed Gemphire that it had received an inbound inquiry from another party that was interested in pursuing a strategic transaction with Party A. On May 3, 2019, the Transaction Committee met telephonically with representatives of management, Ladenburg Thalmann and Honigman, during which meeting Dr. Gullans explained that Party A had requested time to respond to the inbound inquiry it received and provided an update regarding Gemphire's plans for submitting a plan of compliance to Nasdaq. On May 3, 2019, Dr. Gullans visited NeuroBo's headquarters to meet with Mr. Brooks and other members of the NeuroBo team.

Party A's counsel distributed a draft merger agreement to Gemphire and Honigman on May 6, 2019. On May 6, 2019, the Gemphire Board approved an application to transfer Gemphire's common stock to the Nasdaq Capital Market, which has a minimum stockholders' equity requirement of $2.5 million for continued listing. On May 10, 2019, Gemphire received approval from Nasdaq to

transfer the listing of its common stock to the Nasdaq Capital Market, effective at the opening of business on May 14, 2019.

On May 10, 2019, Party A indicated to Gemphire that it was no longer pursuing the other strategic transaction.

On May 10, 2019, NeuroBo, through Consilium, submitted a proposal for a merger and presentation materials on NeuroBo. The proposal contemplated that ownership of the combined company would be determined based on the respective implied equity value of each company. The proposal included an approximate implied equity value of $8 million for Gemphire (which assumed that Gemphire would have net cash of $0 to $500,000 at the closing of the merger) and an implied equity value of $144 million for NeuroBo (including $50 million of aggregate gross proceeds anticipated to be received from a contemplated Series B financing), and a resulting pro forma ownership split of the combined company of 5% held by Gemphire stockholders and 95% held by NeuroBo stockholders.

On May 15, 2019, the Transaction Committee met to review and compare the proposals of Party A and NeuroBo, and the Transaction Committee authorized Gemphire's management to further explore the opportunity with NeuroBo. In connection with its review of the proposal, the Transaction Committee considered favorably the late stage of development of NeuroBo's product candidate, NB-01, NeuroBo's willingness to explore alternative means to extract value from gemcabene post-closing (for example, by issuing CVRs to the Gemphire Stockholders) and the stage of NeuroBo's Pre-Closing Financing, which was farther along and presented less financing risk compared to the concurrent investment contemplated by Party A. The Transaction Committee also considered the implied equity value of Gemphire proposed by each party, along with the proposed implied equity value of Party A and NeuroBo, and resulting pro forma ownership split of the combined company in each proposal taking into account feedback from Ladenburg that the valuations of NeuroBo and Party A are validated by concurrent capital raises and the value attributed to Gemphire in both proposals appeared to be in an appropriate range. The Transaction Committee believed NeuroBo's proposed post-closing ownership by Gemphire Stockholders of 5.3% to be fairly comparable to the terms being negotiated with Party A, given the expected post-closing ownership under the draft term sheet with Party A, taking into account Party A's anticipated concurrent capital raise, and the lack of CVRs in the draft term sheet with Party A.

Party A's counsel sent drafts of forms of the support agreement and lock-up agreement to Honigman on May 16, 2019.

Ladenburg Thalmann sent a draft term sheet for a merger transaction, based on NeuroBo's proposal, to Consilium on May 17, 2019.

On May 21, 2019, the Transaction Committee held a meeting in which management and representatives of Ladenburg Thalmann and Honigman participated during which the status of negotiations of a term sheet for a merger transaction with NeuroBo and the status of Party A's plans for a pre-transaction financing were discussed.

On May 22, 2019, Honigman provided Party A's counsel with its comments on the merger agreement with Party A.

Following turns of the draft and numerous phone conversations between representatives of Gemphire, Cooley Shanghai and Beijing SL regarding the draft Beijing SL License Agreement, on May 22 and 23, 2019, a member of Gemphire's management team met with the leadership team of Beijing SL at their headquarters in Beijing, China to further discuss the outlicensing transaction between the two companies. At this meeting, several key topics around the clinical development for gemcabene in China were discussed, including but not limited to, the regulatory pathway, timing of the clinical program and trials, technology transfer, clinical drug supply and utilization of a global contract research organization. Following such meeting, internal members of both management teams had

weekly meetings to discuss edits to the definitive agreement on the topics of tax treatment, clinical supply, the clinical development program for HoFH, and contract research organization support.

On May 22, 2019, Gemphire gave NeuroBo and its advisors access to its due diligence data site.

On May 23, 2019, Dr. Gullans visited NeuroBo's headquarters to meet with NeuroBo management, a NeuroBo Board member and a representative of Consilium to discuss the term sheet.

On May 24, 2019, Party A informed Gemphire that it was withdrawing from negotiations because Party A lacked the support of its largest investors to finance a reverse merger transaction. Dr. Gullans informed the members of the Transaction Committee individually and provided further information at a meeting of the Transaction Committee held on May 28, 2019.

On behalf of NeuroBo, Consilium returned a revised draft of a term sheet for a merger transaction to Ladenburg Thalmann on May 28, 2019 which, among other things, provided that the exchange ratio and post-closing ownership of Gemphire Stockholders would be adjusted downward if Gemphire's enterprise valuation was less than $8.0 million at closing, contained changes to the terms of the CVRs to adjust the percentage to be received under the CVRs from 90% (proposed by Gemphire) to 80% of the net proceeds above $500,000, reduced the minimum gross proceeds to be received by NeuroBo in the Pre-Closing Financing as a condition to closing from $50.0 million to $40.0 million and proposed an extended exclusivity period of 90 days. The Transaction Committee, with members of Gemphire's management and representatives of Ladenburg Thalmann and Honigman, discussed the revised term sheet received from NeuroBo, reflecting comments from Ladenburg Thalmann and Honigman, including removing the concept of adjusting the exchange ratio and post-closing ownership percentages to reflect Gemphire's enterprise value at Closing and a reduction in the exclusivity period to 45 days, at a meeting on May 28, 2019 and approved a revised term sheet later that day.

Gemphire and NeuroBo executed a non-binding term sheet on May 30, 2019 containing a 45-day exclusivity period, which the Transaction Committee considered appropriate given the process undertaken by Gemphire to identify potential transactions and transaction partners. Among other things, the term sheet required that, in order for the CVRs to be issued to Gemphire Stockholders, Gemphire would need to raise sufficient funds to cover the cost of the activities required by the FDA for Gemphire to request the release of the partial clinical hold on gemcabene.

Following execution of the term sheet, on June 3, 2019, the parties held a conference call, with representatives of Ladenburg Thalmann, Honigman and Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. ("Mintz"), counsel to NeuroBo, participating, to discuss next steps in the preparation of a definitive merger agreement, and NeuroBo gave Gemphire and its advisors access to its due diligence data site.

The Gemphire Board held a telephonic special meeting on June 3, 2019 during which the Gemphire Board discussed the signed term sheet with NeuroBo, NeuroBo's financing efforts, the status of negotiations with Beijing SL and various financing considerations for purposes of meeting the requirements set forth in the term sheet as conditions to the issuance of CVRs.

Representatives of Mintz and Honigman met telephonically on June 4, 2019 and again on June 5, 2019 to discuss financing alternatives for Gemphire. On June 5, 2019, a weekly update call with representatives of Gemphire, NeuroBo, Ladenburg Thalmann, Consilium, Honigman and Mintz was held to discuss status and process.

Honigman distributed an initial draft of the merger agreement and a due diligence document request list to Mintz on June 6, 2019.

On June 12, 2019, a weekly update call was held with representatives of Gemphire, NeuroBo, Ladenburg Thalmann, Consilium, Honigman and Mintz. Representatives of Mintz and Honigman also met telephonically to discuss the draft merger agreement on June 13, 2019.

On June 14, 2019, representatives of Gemphire and NeuroBo met telephonically and in person to discuss, among other things, open due diligence questions, the support needed to complete the activities required for resubmitting the request to the FDA to lift the partial clinical hold on gemcabene, the status of Gemphire's outlicensing negotiations with Beijing SL, the status of fundraising by NeuroBo, and other operational and merger-related topics.

The Transaction Committee met telephonically on June 18, 2019 to discuss the status of negotiations with NeuroBo and the receipt of financial information regarding NeuroBo from Consilium, which Ladenburg Thalmann and Gemphire received on June 18, 2019.

Mintz distributed its comments on the draft merger agreement to Honigman on June 20, 2019. On June 25, 2019, Mintz distributed to Honigman initial drafts of the proposed voting agreements and lock-up agreement to be signed by certain stockholders of Gemphire and NeuroBo.

The Transaction Committee met telephonically on June 25, 2019 with management and representatives of Ladenburg Thalmann and Honigman participating, to discuss the status of negotiations with NeuroBo, the financing efforts of NeuroBo and financing considerations of Gemphire.

Gemphire announced top-line data from the investigator-led Phase 2a study to assess the efficacy and safety of two dosing regimens of gemcabene in patients with FPLD on June 26, 2019.

Honigman distributed a revised draft merger agreement to Mintz on June 26, 2019.

On June 26, 2019, a weekly update call was held with representatives of Gemphire, NeuroBo, Ladenburg Thalmann, Consilium, Honigman and Mintz.

Dr. Gullans and Mr. Reno met telephonically with Mr. Brooks on June 28, 2019 to discuss NeuroBo's diligence review of gemcabene, NeuroBo's input on the potential outlicensing transaction with Beijing SL and Gemphire's operating budget and cash balance.

The Transaction Committee met telephonically on July 2, 2019 with management and representatives of Ladenburg Thalmann and Honigman participating, to discuss recent communications with Beijing SL and NeuroBo regarding the potential outlicensing transaction, the status of the due diligence review of NeuroBo, an update on the prior meeting between Gemphire and NeuroBo management and Gemphire's operating budget and cash balance.

Honigman distributed an initial draft of the Gemphire disclosure schedules to Mintz on July 2, 2019.

On July 3, 2019, a weekly update call was held with representatives of Gemphire, NeuroBo, Ladenburg Thalmann, Consilium, Honigman and Mintz.

Honigman distributed comments on the voting agreements and lock-up agreements to Mintz on July 3, 2019.

Mintz distributed comments to the draft merger agreement and a draft of the NeuroBo disclosure schedules to Honigman on July 3, 2019.

Mintz distributed an initial draft of the CVR Agreement to Honigman on July 9, 2019.

Honigman distributed comments on the voting agreements and lock-up agreements and updates to the Gemphire disclosure schedules to Mintz on July 11, 2019.

On July 11, 2019, the Gemphire Compensation Committee met telephonically with management and representatives of Honigman participating, to discuss severance benefits that executives and employees are expected to receive in connection with a proposed merger with NeuroBo.

On July 12, 2019, a weekly update call was held with representatives of Gemphire, NeuroBo, Ladenburg Thalmann, Consilium, Honigman and Mintz.

Between July 12, 2019 and July 18, 2019, Gemphire and NeuroBo exchanged several revisions to the draft merger agreement, CVR Agreement, voting and lockup agreements, each party's exhibits and schedules, exchanged materials in response to diligence requests and representatives of each of the companies participated in various calls to discuss the same. Negotiations focused on the Permitted Deductions and combined company's commitments to further develop gemcabene for purposes of the CVR Agreement, treatment of payments that may be received pursuant to the Beijing SL License Agreement under the CVR Agreement, proposed employment agreement amendments to reduce severance and restricted stock grants discussed below, both companies' budgets and the pre-closing covenants of NeuroBo. Gemphire's negotiations with Beijing SL continued and drafts of the draft Beijing SL License Agreement were exchanged, with the remaining open points surrounding the treatment of taxes due on the upfront payment. On frequent update calls, NeuroBo provided updates regarding the status of its Pre-Closing Financing and Gemphire provided updates on the status of its negotiations with Beijing SL.

On July 15, 2019, Gemphire and NeuroBo agreed to an amendment to the non-binding term sheet between the parties to extend the exclusivity period to July 23, 2019 to allow the parties additional time to continue to proceed towards finalizing a definitive merger agreement.

On July 16, 2019, the Transaction Committee met to receive an update regarding negotiations with NeuroBo and ratified the extension of the exclusivity period with NeuroBo.

On July 18, 2019, the Transaction Committee met with members of Gemphire's management and representatives of Ladenburg Thalmann and Honigman and received an update regarding the status of NeuroBo's Series B Preferred Stock financing, which included an update that one party that was expected to invest $15 million was continuing its due diligence review of NeuroBo and may not fund its investment in the near term. Dr. Gullans stated that NeuroBo's Chief Executive Officer had proposed, recognizing that negotiations between Gemphire and NeuroBo were substantially complete, that the parties sign the merger agreement on the basis of the gross proceeds of approximately $24 million already received by NeuroBo in its Pre-Closing Financing and revise the closing conditions in the merger agreement so that NeuroBo is permitted, but not required for Closing, to raise additional funds in the Pre-Closing Financing. Mr. Reno also updated the Transaction Committee on recent conversations with Beijing SL on the last open point in the Beijing SL License Agreement relating to the treatment of taxes due on the upfront payment.

Between July 18, 2019 and July 23, 2019, as Gemphire worked to finalize negotiations with Beijing SL, Dr. Gullans and Mr. Brooks and outside counsel for both companies finalized the outstanding terms of the merger agreement, CVR Agreement and ancillary agreements, and the parties gathered signatures to the voting and lock-up agreements.

On July 23, 2019, the Gemphire Compensation Committee met with representatives of management and Honigman and, at such meeting, following discussion, approved and, with respect to Chief Executive Officer and non-employee director compensation matters, recommended that the Gemphire Board approve, (i) amendments to employment agreements with certain employees to reduce the cash severance obligation owed to each employee in connection with the anticipated termination of their employment upon the Closing of the merger and related restricted stock awards to such employees, (ii) restricted stock awards to other employees of Gemphire (62,000 shares of restricted stock in the aggregate) and (iii) restricted stock awards to the non-employee directors of Gemphire (45,000 shares of restricted stock in the aggregate) in connection with their waiver of the cash retainer that would otherwise be payable to such non-employee directors for the remainder of 2019 under Gemphire's non-employee director compensation policy.

On July 23, 2019, the Transaction Committee met, with representatives of management, Honigman and Ladenburg Thalmann present. At the meeting, the Transaction Committee received reports and presentations from management and Honigman regarding the legal due diligence review of NeuroBo and the key provisions of the transaction documents for the proposed merger with NeuroBo, and a presentation from Ladenburg Thalmann with respect to its financial analyses of the merger consideration. Ladenburg Thalmann also noted that it would be able to deliver to the Gemphire Board its opinion that, based upon the various assumptions, qualifications and limitations set forth therein, the merger consideration is fair, from a financial point of view, to the Gemphire Stockholders. Following discussion, the Transaction Committee unanimously determined that it was advisable and fair to, and in the best interests of Gemphire and the Gemphire Stockholders to enter into the Original Merger Agreement, approved the Original Merger Agreement, and recommended that the Original Merger Agreement, related agreements and the consummation of the transactions contemplated thereby be presented to the Gemphire Board for approval.

Later on July 23, 2019, the Gemphire Board met, with representatives of management, Honigman and Ladenburg Thalmann present. At the meeting, the following occurred, among other things:

- Mr. Reno, Gemphire's Chief Commercial Officer, and representatives of Honigman provided an overview of the key terms of the proposed Beijing SL License Agreement, along with a history of the negotiation process with Beijing SL, following discussion of which, the Gemphire Board unanimously determined that it was advisable and fair to, and in the best interests of Gemphire and the Gemphire Stockholders for Gemphire to enter into the Beijing SL License Agreement, and approved the Beijing SL License Agreement;

- the Gemphire Board discussed, considered and approved, with Dr. Gullans abstaining, upon recommendation of the Gemphire Compensation Committee as described above, an amendment to the employment agreement with Dr. Gullans to reduce the cash severance obligation owed to Dr. Gullans in connection with the anticipated termination of his employment upon the Closing of the merger and related restricted stock award to Dr. Gullans, as well as restricted stock awards to the non-employee directors of Gemphire in connection with their waiver of the cash retainer that would otherwise be payable to such non-employee directors for the remainder of 2019 under Gemphire's non-employee director compensation policy;

- the Gemphire Board received a report from Honigman regarding the legal due diligence review of NeuroBo and key provisions of the transaction documents, including the provisions regarding calculation of the Exchange Ratio, treatment of Gemphire and NeuroBo's convertible securities in the merger, net cash requirements for closing, non-solicitation clause and fiduciary duty exceptions, change of board recommendation provisions, termination provisions and related fee and expense reimbursement requirements, CVR terms, lock-up and voting agreements, and the requirements related to NeuroBo's Pre-Closing Financing;

- Honigman provided materials regarding the fiduciary duties of directors in connection with the consideration of the merger transaction;

- the Gemphire Board received a presentation from Ladenburg Thalmann regarding its financial analyses of the merger consideration, confirmation that, for the three preceding years, Ladenburg Thalmann had not had a relationship with either Gemphire or NeuroBo or received any fees from Gemphire or NeuroBo, except for the $100,000 upfront fee paid by Gemphire to Ladenburg Thalmann in connection with its engagement and stating its oral opinion, to be confirmed in writing, that based upon the various assumptions, qualifications and limitations set forth therein, the merger consideration is fair, from a financial point of view, to the Gemphire Stockholders;

- the Gemphire Board engaged in discussions relating to NeuroBo, its business and the terms of the proposed merger; and
- after further discussion, the Gemphire Board unanimously determined that it was advisable and fair to, and in the best interests of Gemphire and the Gemphire Stockholders to enter into the Original Merger Agreement, approved the Original Merger Agreement and declared it advisable.

The presentation to the Transaction Committee and the Board contemplated an estimated Exchange Ratio of 269,696.1030 (or 26.9696 after giving effect to the 10,000-to-1 NeuroBo Stock Split effected on August 13, 2019), which was calculated pursuant to the Original Merger Agreement terms negotiated with NeuroBo and based on (i) for NeuroBo, an implied equity value of $94,000,000 prior to the Pre-Closing Financing plus $24,240,000, the aggregate gross proceeds received by NeuroBo in the Pre-Closing Financing and (ii) for Gemphire, an implied equity value of $8,000,000 less the Parent Cash Amount of negative $3 million that was expected at Closing. The estimated Exchange Ratio was then calculated using 1,393 shares (pre-NeuroBo Stock Split) of NeuroBo common stock outstanding on a fully-diluted basis after the Pre-Closing Financing (which, for purposes of the Convertible Note Conversion, calculated accrued interest on the NeuroBo convertible notes through July 31, 2019) and 15,886,615 shares of Gemphire common stock outstanding, on a fully-diluted basis, excluding shares underlying Gemphire Options, all of which were out of the money immediately prior to signing the Original Merger Agreement so, it was assumed that pursuant to the Original Merger Agreement, the Gemphire Options will be terminated and cease to exist immediately prior to the Effective Time.

Also on July 23, 2019, Gemphire and Beijing SL executed the Beijing SL License Agreement.

On July 24, 2019, Gemphire management was informed by NeuroBo management that the NeuroBo Board had unanimously approved entering into the Original Merger Agreement with Gemphire, including the form of the CVR Agreement attached thereto to be executed at the Effective Time.

On July 24, 2019, Ladenburg Thalmann delivered to the Gemphire Board its written opinion, to the effect that and subject to the various assumptions and limitations set forth in its opinion, as of that date, the merger consideration was fair, from a financial point of view, to the Gemphire Stockholders. On the same day, Gemphire entered into the Original Merger Agreement with NeuroBo and issued a joint press release with NeuroBo announcing the execution of the Original Merger Agreement and the Beijing SL License Agreement.

Following notification from the SEC that the registration statement of which this proxy statement/prospectus/information statement forms a part would receive a full review, Gemphire began reviewing additional cost-cutting measures to conserve cash until the expected closing, ultimately resulting in salary reductions and employment agreement amendments entered into with Gemphire's executive officers described under "—Interests of Gemphire Directors and Executive Officers in the Merger—Merger-Related Compensation of Executive Officers and Directors—Executive Officers". In connection with NeuroBo's approval of such changes pursuant to the pre-closing covenants in the Merger Agreement and the preparation of Gemphire's Nasdaq stockholders' equity compliance plan, Dr. Gullans sent an updated budget forecast of expenses for Gemphire and for the development of gemcabene through the Covenant End Date to NeuroBo and Mintz on September 25, 2019, which reflected a Parent Cash Amount of less than negative $3 million assuming a possible conservative closing date of December 31, 2019 and no further cost-cutting efforts on behalf of Gemphire.

Gemphire continued to edit its expected budget through closing and to show expected continued development costs of gemcabene post-closing through March 31, 2020, including by working with NeuroBo to determine amounts in the two companies' budgets that may be duplicative in part because Gemphire was now expected to incur certain expenses related to the development of gemcabene in the

fourth quarter of 2019, which the parties had previously expected would be incurred post-closing as part of the $1 million commitment under the CVR Agreement (the "Gemcabene Funding"). In light of Gemphire's continued expectation that its net cash at closing may be less than negative $3 million, following a discussion between Dr. Gullans and Mr. Brooks, representatives of Mintz and Honigman telephonically discussed on October 15, 2019 a potential amendment to the Merger Agreement.

Following further work by Gemphire on the budget, on October 18, 2019, a follow-up telephone conversation was held with representatives of Gemphire, NeuroBo, Honigman and Mintz to discuss specific amounts in Gemphire's updated budget, including Gemphire's expectations that the Parent Cash Amount would be between negative $3.3 million and $3.4 million, net of amounts covered by the Gemcabene Funding, if the merger were to close on December 31, 2019. On October 22, 2019, Honigman sent Mintz a draft of the First Amendment to the Merger Agreement (the "Merger Agreement Amendment"), which reflected a change in the minimum Parent Cash Amount from negative $3 million to negative $3.5 million and revised the definition of Parent Cash Amount to clarify that the Parent Cash Amount shall not be reduced for payments by Gemphire of amounts that are covered by the Gemcabene Funding. The draft Merger Agreement Amendment also contemplated increasing the size of the board of directors of the combined company to add new independent directors and extending the End Date of the Original Merger Agreement by 60 days.

Following additional input by Gemphire, on October 24, 2019, Honigman sent a revised draft of the Merger Agreement Amendment to Mintz reflecting a new minimum Parent Cash Amount of negative $3.75 million, to reduce the closing risk associated with having the expected Parent Cash Amount be close to the minimum, and to reflect the delivery of an updated Gemphire operating budget concurrently with the execution of the Merger Agreement Amendment.

On October 28, 2019, the Gemphire Board unanimously determined that the transactions contemplated by the Merger Agreement, as amended by the Merger Agreement Amendment, were fair to, advisable and in the best interest of Gemphire and the Gemphire Stockholders; approved and declared advisable the Merger Agreement, as amended by the Merger Agreement Amendment and the transactions contemplated therein; and determined to recommend, upon the terms and subject to the conditions of the Merger Agreement, as amended by the Merger Agreement Amendment, that the Gemphire Stockholders vote to approve the Merger Agreement, as amended by the Merger Agreement Amendment, and the transactions contemplated therein.

On October 29, 2019, the Merger Agreement Amendment was executed by Gemphire and NeuroBo.

**Gemphire Reasons for the Merger**

At a special meeting of the Gemphire Board held on July 23, 2019, among other things, the board unanimously (i) determined that the Original Merger Agreement and the transactions contemplated thereby, including the merger, are fair to, advisable and in the best interests of Gemphire and the Gemphire Stockholders, (ii) approved and declared advisable the Original Merger Agreement and the merger, and (iii) determined to recommend, upon the terms and subject to the conditions set forth in the Original Merger Agreement, that the Gemphire Stockholders vote to approve the issuance of Gemphire common stock to NeuroBo Stockholders pursuant to the Original Merger Agreement and the change of control of Gemphire resulting from the merger pursuant to Nasdaq rules, the amendment of the Gemphire Certificate to effect the Gemphire Reverse Stock Split and Gemphire Name Change and the adoption of the Gemphire 2019 Plan.

Leading up to such approval, a special committee of independent members of the Gemphire Board, known as the Transaction Committee, and its financial advisor, Ladenburg Thalmann, undertook a comprehensive and thorough process to review and analyze potential strategic transaction opportunities and merger candidates to identify an opportunity or merger partner that would, in the

Gemphire Board's view, create the most value for the Gemphire Stockholders. In the course of its evaluation of the Original Merger Agreement and merger with NeuroBo, the Transaction Committee held numerous meetings, consulted with Gemphire senior management, Gemphire's outside legal counsel and Gemphire's financial advisor, and reviewed and assessed a significant amount of information, and considered a number of factors. This information was shared on a regular basis with all members of the Gemphire Board to enable the Gemphire Board to be fully informed to reach its final decisions. The information and factors considered in the evaluation included the following:

- the Gemphire Board's belief that a go it alone scenario was not without significant risk and dilution to the Gemphire Stockholders, taking into account Gemphire's business, operational and financial prospects, including its cash position, the substantially diminished price of the Gemphire common stock following the FDA's decision to request additional preclinical studies in connection with the partial clinical hold on gemcabene, uncertainty regarding the potential results from the preclinical studies, uncertainty regarding the future costs and timeline to support a Phase 3 clinical program of gemcabene, the likelihood of success in conducting a Phase 3 trial and obtaining an NDA, and the need to raise significant additional financing for future clinical and commercial development of gemcabene;

- the Gemphire Board's belief, given the risks associated with clinical development and, in particular, that deriving value from gemcabene would require a favorable future decision by the FDA to lift the partial clinical hold, and based in part on the judgement, advice and analysis of Gemphire senior management with respect to the potential strategic, financial and operational benefits of the merger (which judgement was informed in part by the business, technical, financial and legal due diligence investigation performed by Gemphire with respect to NeuroBo) that NeuroBo's Phase 3 ready, lead product candidate, NB-01, for painful diabetic neuropathy, as well as its product candidate, NB-02, for neurodegenerative diseases, along with the experience of its management and other personnel, the recognition that NeuroBo would provide limited support for certain preclinical activities to enable an application to the FDA to lift the partial clinical hold on gemcabene and the granting of CVRs to Gemphire Stockholders to provide a potential financial benefit in the event that gemcabene is sold or licensed during a future period, would create more value for Gemphire Stockholders in the long term than Gemphire could create as an independent stand-alone company;

- the Gemphire Board's review of the current development plans of NeuroBo to confirm the likelihood that the combined company would possess sufficient resources, or have access to sufficient resources, to allow NeuroBo senior management to focus on its plans for the continued development of NeuroBo's product pipeline, as well as the $1 million NeuroBo has agreed to commit to support the further development of gemcabene through the quarter ending March 31, 2020 pursuant to the CVR Agreement, which Gemphire believes will be sufficient to complete the preclinical toxicology studies necessary to resubmit the request to the FDA to release the partial clinical hold;

- the Gemphire Board's consideration that the combined company should have sufficient cash at the Closing for the combined company to sustain its operations through July 2020 and the combined company's public company structure will provide it with access to the public market to raise additional funds in the future;

- the Gemphire Board's consideration of the valuation and business prospects of all other strategic transaction candidates involved in its strategic review process, and its collective view that NeuroBo was the most attractive candidate for Gemphire due to, among other things, NeuroBo's Phase 3 ready asset, NB-01, with two completed Phase 2 trials, NeuroBo's strong financial position that includes backing from a syndicate of investors, the large potential market opportunity for NB-01 given the side effect profile of existing pain therapeutics, the willingness

of NeuroBo to commit $1 million toward completion of the preclinical toxicology work and submission to the FDA to lift the partial clinical hold on gemcabene, NeuroBo's understanding the potential value of Gemphire's partnership with Beijing SL for the rights to gemcabene for the China market and NeuroBo's ability to bring its own financial resources from both existing and potentially new investors, and that its potential to achieve key milestones over the next two years could enable the combined company to access the public markets for additional financial resources;

- the Gemphire Board's conclusion that the merger provides existing Gemphire Stockholders a significant opportunity to participate in the potential growth of the combined company following the merger, while potentially receiving certain cash payments from the grant, sale or transfer of rights to gemcabene during a certain period following Closing on account of the CVR Agreement to be executed at the Effective Time;

- the Gemphire Board's consideration that the combined company will be led by an experienced senior management team from NeuroBo and a board of directors with representation from each of the current boards of directors of Gemphire and NeuroBo; and

- the Gemphire Board's consideration of the financial analysis of Ladenburg Thalmann and the opinion of Ladenburg Thalmann delivered to the Gemphire Board on July 24, 2019, to the effect that, as of the date of such opinion, and based upon and subject to the various assumptions made, procedures followed, matters considered and limitations and qualifications on the scope of the review undertaken by Ladenburg Thalmann, as set forth in its written opinion, the merger consideration was fair to Gemphire Stockholders, from a financial point of view.

The Gemphire Board also considered the recent results of operations and financial conditions of Gemphire, including:

- the perceived value of Gemphire reflected in the diminished price of the Gemphire common stock following the FDA's decision related to the toxicology report to not lift the partial clinical hold and to request that Gemphire conduct additional preclinical toxicology studies;

- the lack of sufficient capital to complete the FDA requested toxicology studies and submit a complete response to request again that the FDA lift the partial clinical hold, as well as the challenge of raising sufficient capital to complete this work under terms that would be more favorable to Gemphire Stockholders than the merger with NeuroBo;

- the risk that even if the partial clinical hold on gemcabene were lifted, as a stand-alone, single asset company with low cash reserves, the value of gemcabene following an approximately 18 month delay in clinical progress would not then be sufficiently demonstrated to raise additional funds in the public markets to fund the continued development of gemcabene at a valuation that would not lead to substantial further dilution for existing Gemphire Stockholders;

- the loss of operational capabilities of Gemphire and risks associated with continuing to operate Gemphire on a stand-alone basis, including Gemphire's current limited number of employees and reliance on outside consultants and third-party contractors for ongoing preclinical activities;

- despite significant business development efforts, the inability of Gemphire to identify a pharmaceutical partner willing to provide significant financial support to co-develop or buy gemcabene while the partial clinical hold is in place, including the understanding that the partnership signed with Beijing SL for rights to the Chinese market only, while validating, were likely financially insufficient to support the development of gemcabene going forward and not strategically significant enough to attract sufficient public investor interest at a valuation that would not lead to further substantial dilution for existing Gemphire Stockholders;

- the market prices, volatility and trading volume of Gemphire common stock and current financial market conditions;
- the limited amount of available cash expected to be left, if any, to be distributed to Gemphire Stockholders in a potential dissolution and liquidation of Gemphire and the risks, costs and timing of such a process; and
- Gemphire's potential inability to maintain its listing on the Nasdaq Capital Market without completing the merger.

The Gemphire Board also reviewed the terms of the Original Merger Agreement, the CVR Agreement and associated transactions, including:

- the fact that the Exchange Ratio, which is expected to result in Gemphire Securityholders immediately prior to the merger owning between 3-4% of the combined company immediately following the merger, on a fully-diluted basis, is financially attractive in light of Gemphire's stand-alone value, recent stock price and strategic alternatives, and the potential value of NeuroBo following the merger;
- the rights of, and limitations on, Gemphire and NeuroBo under the Merger Agreement to consider certain unsolicited acquisition proposals under the certain circumstances, should such party receive a "superior offer";
- the Gemphire Board's belief that the terms of the Merger Agreement, including the parties' representations, warranties and covenants, deal protection provisions and the conditions are reasonable for a transaction of this nature; and
- the Gemphire Board's belief that the CVR Agreement potentially providing certain cash payments from the grant, sale or transfer of rights to gemcabene during a certain period following Closing to Gemphire Stockholders of record as of the Closing, whether or not they continue to hold Gemphire shares subsequent to the merger, is reasonable and fair under the circumstances.

The Gemphire Board also considered a variety of risks and other countervailing factors related to the merger, including:

- the fact that the Exchange Ratio may be adjusted to the extent Gemphire's Parent Cash Amount at Closing is negative or to reflect aggregate gross proceeds received by NeuroBo in its Pre-Closing Financing before the Closing above the minimum required amount and up to and including $50 million;
- the up to $1 million termination fee payable by Gemphire to NeuroBo upon the occurrence of certain events and the potential effect of such termination fee in deterring other potential acquirers from proposing an alternative transaction that may be more advantageous to Gemphire Stockholders;
- the up to $1 million termination fee payable by NeuroBo to Gemphire upon the occurrence of certain events and the likelihood the receipt of the termination fee from NeuroBo will only offset a portion of expenses incurred by Gemphire in connection with the merger;
- the substantial expenses incurred and to be incurred by Gemphire in connection with the merger;
- the possible volatility of the trading price of the Gemphire common stock resulting from the announcement of the merger;

- the risks that the merger might not be consummated in a timely manner or at all and the potential effect of the public announcement of the merger or failure to complete the merger on the reputation of Gemphire;
- the risks to Gemphire's business, operations and financial results in the event that the merger is not consummated;
- the strategic direction of the combined company following the Closing of the merger, which will be determined by a combination of individuals from NeuroBo senior management and the NeuroBo Board composed in the majority of members of the NeuroBo Board, including their ability to determine to discontinue any efforts to develop, sell or license gemcabene; and
- the various other risks associated with the combined company and the merger, including those described in the sections entitled "*Risk Factors*" and "*Cautionary Statement Concerning Forward-Looking Statements*".

In addition, the Gemphire Board considered the interests that its directors and executive officers may have with respect to the merger that are different from or in addition to their interests as Gemphire Stockholders generally, as described under "*The Merger—Interests of Gemphire Directors and Executive Officers in the Merger*."

On October 28, 2019, the Gemphire Board unanimously determined that the transactions contemplated by the Merger Agreement, as amended by the Merger Agreement Amendment, were fair to, advisable and in the best interest of Gemphire and the Gemphire Stockholders; approved and declared advisable the Merger Agreement, as amended by the Merger Agreement Amendment and the transactions contemplated therein; and determined to recommend, upon the terms and subject to the conditions of the Merger Agreement, as amended by the Merger Agreement Amendment, that the Gemphire Stockholders vote to approve the Merger Agreement, as amended by the Merger Agreement Amendment, and the transactions contemplated therein.

The foregoing information and factors considered by the Gemphire Board are not intended to be exhaustive but are believed to include all of the material factors considered by the Gemphire Board. In view of the wide variety of factors considered in connection with its evaluation of the merger and the complexity of these matters, the Gemphire Board did not find it useful to attempt, and did not attempt, to quantify, rank or otherwise assign relative weights to these factors. In considering the factors described above, individual members of the Gemphire Board may have given different weight to different factors. The Gemphire Board conducted an overall analysis of the factors described above, including thorough discussions with, and questioning of, Gemphire's management team, members of the Transaction Committee and the legal and financial advisors of Gemphire, and considered the factors overall to be favorable to, and to support, its determination.

**NeuroBo Reasons for the Merger**

The following discussion sets forth material factors considered by the NeuroBo Board in reaching its determination to approve the terms and authorize the execution of the Merger Agreement (including the Merger Agreement Amendment) for the purpose of implementing the merger; however, it may not include all of the factors considered by the NeuroBo Board. In light of the number and wide variety of factors considered in connection with its evaluation of the Merger Agreement, the NeuroBo Board did not consider it practicable to, and did not attempt to, quantify or otherwise assign relative weights to the specific factors it considered in reaching its determination. The NeuroBo Board viewed its position and determinations as being based on all of the information available and the factors presented to and considered by it. In addition, individual directors may have given different weight to different factors.

In the course of reaching its decision to approve the terms and authorize the execution of the Merger Agreement for the purpose of consummating the merger, the NeuroBo Board consulted with NeuroBo's senior management, legal counsel and other advisors, and reviewed a significant amount of information and considered a number of factors, including, among others:

- historical and current information concerning NeuroBo's business, including its financial performance and condition, operations, management and pre-clinical and clinical data;
- neuroBo's prospects if it were to remain an independent company, including its need to obtain additional financing to continue its operations and the terms on which it would be able to obtain such financing, if at all;
- the likelihood that alternative strategic transactions may be available to NeuroBo, if at all;
- the anticipated cash resources of the combined organization expected to be available at the Closing and the anticipated burn rate of the combined organization;
- the potential to provide its current stockholders with greater liquidity by owning stock in the combined organization, a public company;
- the expectation that the merger with Gemphire would be a more time- and cost-efficient means to access capital than other options considered by and available to NeuroBo, including private placements, venture debt financings and traditional methods of accessing the public markets through an initial public offering of NeuroBo's securities;
- the broader range of investors potentially available to the combined organization as a public company to support the development of NeuroBo's product candidates, as compared with the investors that NeuroBo could otherwise gain access to if it continued to operate as a privately held company;
- the expectation that substantially all of NeuroBo's employees, particularly its management, will serve in similar roles at the combined organization;
- the potential value of gemcabene and the ability of the combined organization to advance the development of the gemcabene program;
- the terms and conditions of the Merger Agreement, including, without limitation, the following:
    - the expected relative percentage ownership of Gemphire Stockholders and NeuroBo Stockholders in the combined organization at the Closing and the implied valuation of NeuroBo and Gemphire;
    - the parties' representations, warranties and covenants and the conditions to their respective obligations; and
    - the limited number and nature of the conditions of the obligation of Gemphire to consummate the merger;
- the receipt of voting agreements from certain significant Gemphire Stockholders holding approximately 26% of the outstanding Gemphire common stock under which these Gemphire Stockholders agreed to vote all of their shares of Gemphire common stock in favor of the issuance of shares of Gemphire common stock in connection with the merger; and
- the likelihood that the merger will be consummated on a timely basis.

The NeuroBo Board also considered a number of uncertainties and risks in its deliberations concerning the merger and the other transactions contemplated by the Merger Agreement, including the following:

- the risk that the potential benefits of the Merger Agreement may not be realized;
- the risk that future sales of common stock by existing Gemphire Stockholders may cause the price of Gemphire common stock to fall, thus reducing the potential value of Gemphire common stock received by NeuroBo Stockholders following the merger;
- the termination fees of $1.0 million and/or expense reimbursement of up to $500,000 payable by NeuroBo to Gemphire upon the occurrence of certain events, and the potential effect of such termination fee and expense reimbursement in deterring other potential acquirers from proposing a competing transaction that may be more advantageous to NeuroBo Stockholders;
- the price volatility of Gemphire common stock, which may reduce the potential value of Gemphire common stock received by NeuroBo Stockholders following the merger;
- the potential reduction of Gemphire's net cash prior to Closing;
- the possibility that Gemphire could, under certain circumstances, consider unsolicited acquisition proposals if superior to the merger or change its recommendation to approve the merger upon certain events;
- the possibility that the merger might not be completed for a variety of reasons, such as the failure of Gemphire to obtain the required stockholder vote, and the potential adverse effect on the reputation of NeuroBo and the ability of NeuroBo to obtain financing in the future in the event the merger is not completed;
- the risk that the merger might not be consummated in a timely manner or at all;
- the expenses to be incurred in connection with the merger and related administrative challenges associated with combining the organizations;
- the additional expenses that NeuroBo's business will be subject to as a public company following the Closing to which it has not previously been subject; and
- various other risks associated with the combined organization and the merger, including the risks described in the section entitled "*Risk Factors*".

The NeuroBo Board weighed the benefits, advantages and opportunities of a potential transaction against the uncertainties and risks described above, as well as the possible diversion of management attention for an extended period of time. After taking into account these and other factors, the NeuroBo Board approved the terms and authorized execution of the Merger Agreement for the purpose of implementing the merger.

**Opinion of the Gemphire Financial Advisor**

As stated above, pursuant to an engagement letter dated November 28, 2018, Gemphire retained Ladenburg Thalmann to act as a financial advisor in connection with the merger and to render the opinion to the Gemphire Board as to the fairness, from a financial point of view, of the merger consideration to the Gemphire Stockholders. Merger consideration is defined herein as both (a) the Exchange Ratio used to determine the number of shares of Gemphire common stock to be issued to the holders of NeuroBo common stock and the number of Gemphire Options to be substituted for the NeuroBo Options to be assumed by Gemphire and (b) the right of the Gemphire Stockholders as of immediately prior to the Effective Time to receive contingent cash payments pursuant to the CVR Agreement. On July 23, 2019, at the request of the Gemphire Board, Ladenburg Thalmann rendered

the oral opinion, subsequently confirmed by delivery of the written opinion dated July 24, 2019, to the Gemphire Board, that the merger consideration was fair, from a financial point of view, to the Gemphire Stockholders as of the date of such opinion and based upon the various assumptions, qualifications and limitations set forth therein.

**The full text of the written Opinion of Ladenburg Thalmann, dated July 24, 2019 (the "Opinion"), is attached as *Annex E* to this proxy statement/prospectus/information statement and is incorporated herein by reference. Gemphire encourages Gemphire Stockholders to read the Opinion in its entirety for the assumptions made, procedures followed, other matters considered and limits of the review by Ladenburg Thalmann. The summary of the written Opinion of Ladenburg Thalmann set forth herein is qualified by reference to the full text of the Opinion. Ladenburg Thalmann provided its Opinion for the sole benefit and use by the Gemphire Board in its consideration of the merger. The Opinion is not a recommendation to any stockholder as to how to vote with respect to the proposed merger or to take any other action in connection with the merger or otherwise.**

In connection with the Opinion, Ladenburg Thalmann took into account an assessment of general economic, market and financial conditions as well as its experience in connection with similar transactions and securities valuations generally and, among other things:

- Reviewed a draft of the Merger Agreement dated July 24, 2019, and a draft CVR Agreement which would be executed in connection with the consummation of the merger. Both the Merger Agreement and the CVR Agreement were the most recent drafts made available to Ladenburg Thalmann prior to delivery of its Opinion;
- Reviewed and analyzed certain publicly available financial and other information for each of Gemphire and NeuroBo, respectively, including equity research on comparable companies and on Gemphire, and certain other relevant financial and operating data furnished to Ladenburg Thalmann by the management of each of Gemphire and NeuroBo, respectively;
- Reviewed and analyzed certain relevant historical financial and operating data concerning NeuroBo, as furnished to Ladenburg Thalmann by the management of NeuroBo;
- Discussed with certain members of the management of Gemphire the historical and current business operations, financial condition and prospects of Gemphire and NeuroBo;
- Reviewed and analyzed certain operating results of NeuroBo as compared to operating results and the reported price and trading histories of certain publicly traded companies that Ladenburg Thalmann deemed relevant;
- Reviewed and analyzed certain financial terms of the Merger Agreement and the CVR Agreement as compared to the publicly available financial terms of certain selected business combinations that Ladenburg Thalmann deemed relevant;
- Reviewed and analyzed certain financial terms of completed initial public offerings for certain companies that Ladenburg Thalmann deemed relevant;
- Reviewed certain pro forma financial effects of the merger;
- Reviewed and analyzed certain internal financial analyses, projections as to cost and expenses, reports, preliminary internal market opportunity assumptions and other information concerning NeuroBo prepared by the management of NeuroBo as well as projections for NeuroBo prepared by the management of Gemphire as adjusted and provided to Ladenburg Thalmann by management of Gemphire and utilized per instruction of Gemphire; and
- Reviewed and analyzed such other information and such other factors, and conducted such other financial studies, analyses and investigations, as Ladenburg Thalmann deemed relevant for the purposes of its Opinion.

In conducting Ladenburg Thalmann's review and arriving at the Opinion, Ladenburg Thalmann has, with Gemphire's consent, assumed and relied, without independent verification or investigation, upon the accuracy and completeness of all financial and other information provided to or discussed with Ladenburg Thalmann by Gemphire and NeuroBo, respectively (or their respective employees, representatives or affiliates), or which is publicly available or was otherwise reviewed by Ladenburg Thalmann. Ladenburg Thalmann has not undertaken any responsibility for the accuracy, completeness or reasonableness of, or independent verification of, such information. Ladenburg Thalmann has relied upon, without independent verifications, the assessment of Gemphire management and NeuroBo management as to the viability of, and risks associated with, the current and future products and services of NeuroBo (including without limitation, the development, testing and marketing of such products and services, the receipt of all necessary governmental and other regulatory approvals for the development, testing and marketing thereof, and the life and enforceability of all relevant patents and other intellectual and other property rights associated with such products and services). In addition, Ladenburg Thalmann has not conducted, nor has it assumed any obligation to conduct, any physical inspection of the properties or facilities of Gemphire or NeuroBo. Furthermore, Ladenburg Thalmann has assumed, with Gemphire's consent, that there will be no further adjustments to the merger consideration between the date of the Opinion and the date the final merger consideration is determined. Ladenburg Thalmann has, with Gemphire's consent, relied upon the assumption that all information provided to Ladenburg Thalmann by Gemphire and NeuroBo is accurate and complete in all material respects. Ladenburg Thalmann expressly disclaims any undertaking or obligation to advise any person of any change in any fact or matter affecting the Opinion of which Ladenburg Thalmann has become aware after the date of the Opinion. Ladenburg Thalmann has assumed there were no material changes in the assets, liabilities, financial condition, results of operations, business or prospects of Gemphire or NeuroBo since the date of the last financial statements made available to Ladenburg Thalmann. Ladenburg Thalmann has not obtained any independent evaluations, valuations or appraisals of the assets or liabilities of Gemphire or NeuroBo, nor has Ladenburg Thalmann been furnished with such materials. In addition, Ladenburg Thalmann has not evaluated the solvency or fair value of Gemphire or NeuroBo under any state or federal laws relating to bankruptcy, insolvency or similar matters. Ladenburg Thalmann was informed that the Parent Cash Amount was expected to be negative $3.0 million at Closing. Ladenburg Thalmann's Opinion does not address any legal, tax or accounting matters related to the merger, as to which Ladenburg Thalmann has assumed that Gemphire management and the Gemphire Board have received such advice from legal, tax and accounting advisors as each has determined appropriate. Ladenburg Thalmann's Opinion addresses only the fairness of the merger consideration, from a financial point of view, to the Gemphire Stockholders. Ladenburg Thalmann expresses no view as to any other aspect or implication of the merger or any other agreement or arrangement entered into in connection with the merger. The Opinion is necessarily based upon economic and market conditions and other circumstances as they exist and can be evaluated by Ladenburg Thalmann on the date of the Opinion. It should be understood that although subsequent developments may affect the Opinion, Ladenburg Thalmann does not have any obligation to update, revise or reaffirm the Opinion and Ladenburg Thalmann expressly disclaims any responsibility to do so.

Ladenburg Thalmann did not assign any value to the right of the Gemphire Stockholders to receive contingent cash payments pursuant to the CVR Agreement, given Ladenburg Thalmann's determination that any projections underlying the analysis would be too speculative to use in Ladenburg Thalmann's analysis of the value of such rights as it relates to the fairness of the merger consideration.

Ladenburg Thalmann has not considered any potential legislative or regulatory changes currently being considered or recently enacted by the United States or any foreign government, or any domestic or foreign regulatory body, or any changes in accounting methods or generally accepted accounting

principles that may be adopted by the SEC, the Financial Accounting Standards Board, or any similar foreign regulatory body or board.

For purposes of rendering the Opinion, Ladenburg Thalmann has assumed in all respects material to Ladenburg Thalmann's analysis, that the representations and warranties of each party contained in the Merger Agreement and CVR Agreement are true and correct, that each party will perform all of the standards of the covenants and agreements required to be performed by it under the Merger Agreement and CVR Agreement and that all conditions to the consummation of the merger will be satisfied without waiver thereof. Ladenburg Thalmann has also assumed that all governmental, regulatory and other consents and approvals contemplated by the Merger Agreement and the CVR Agreement will be obtained and that in the course of obtaining any of those consents no restrictions will be imposed or waivers made that would have an adverse effect on the contemplated benefits of the merger. Ladenburg Thalmann has assumed that the merger will be consummated in a manner that complies with the applicable provisions of the Securities Act, the Exchange Act, and all other applicable federal and state statutes, rules and regulations. Gemphire has informed Ladenburg Thalmann, and Ladenburg Thalmann has assumed, that the merger is intended to constitute either a tax-free contribution under Section 351 of the Code or a reorganization within the meaning of Section 368(a) of the Code and the Treasury Regulations promulgated thereunder.

It is understood that Ladenburg Thalmann's Opinion was intended for the benefit and use of the Gemphire Board in its consideration of the financial terms of the merger and may not be used for any other purpose or reproduced, disseminated, quoted or referred to at any time, in any manner or for any purpose without Ladenburg Thalmann's prior written consent, except pursuant to applicable law or regulations or required by other regulatory authority by the order or ruling of a court or administrative body, except that the Opinion may be included herein. Ladenburg Thalmann's Opinion did not constitute a recommendation to the Gemphire Board on whether or not to approve the merger or to any Gemphire Stockholder or NeuroBo Stockholder or any other person as to how to vote with respect to the merger or to take any other action in connection with the merger or otherwise. Ladenburg Thalmann's Opinion did not address Gemphire's underlying business decision to proceed with the merger or the relative merits of the merger compared to other alternatives available to Gemphire. Ladenburg Thalmann expressed no opinion as to the prices or ranges of prices at which shares of securities of any person, including Gemphire, will trade at any time, including following the announcement or consummation of the merger. Ladenburg Thalmann was not requested to opine as to, and Ladenburg Thalmann's Opinion does not in any manner address, the amount or nature of compensation to any of the officers, directors or employees of any party to the merger, or any class of such persons, relative to the compensation to be paid to the security holders of Gemphire in connection with the merger or with respect to the fairness of any such compensation.

The following is a summary of the principal financial analyses performed by Ladenburg Thalmann to arrive at the Opinion. Some of the summaries of financial analyses include information presented in tabular format. In order to fully understand the financial analyses, the tables must be read together with the text of each summary. The tables alone do not constitute a complete description of the financial analyses. Considering the data set forth in the tables without considering the full narrative description of the financial analyses, including the methodologies and assumptions underlying the analyses, could create a misleading or incomplete view of the financial analyses. Ladenburg Thalmann performed certain procedures, including each of the financial analyses described below and reviewed with the management of Gemphire the assumptions on which such analyses were based and other factors, including the historical and projected financial results of Gemphire and NeuroBo.

***Transaction Overview as of the Date of the Opinion***

Based upon the initial estimate of the Exchange Ratio on July 23, 2019 of 269,696.1030 (prior to effecting the NeuroBo Stock Split and the Gemphire Reverse Stock Split and, for purposes of the

Convertible Note Conversion, calculating accrued interest on the NeuroBo convertible notes through July 31, 2019), it was estimated that at Closing: (a) NeuroBo Securityholders as of immediately prior to the merger (including the holders of shares issued in the $24.2 million Pre-Closing Financing) would own, or hold rights to acquire, in the aggregate approximately 95.94% of the Fully Diluted Closing Gemphire Common Stock, and (b) the Gemphire Securityholders as of immediately prior to the merger (excluding for this purpose out-of-the-money Gemphire Options) would own, or hold rights to acquire, in the aggregate approximately 4.06% of the Fully Diluted Closing Gemphire Common Stock, in each case, subject to adjustment of the Exchange Ratio as set forth in the Merger Agreement and described herein.

*Implied Equity Value*

Ladenburg Thalmann estimated an implied equity value for NeuroBo of approximately $118.2 million, which was calculated by multiplying 10,900,000 (the number of NeuroBo shares outstanding before including the shares issued in the Pre-Closing Financing) by $8.623853 (the implied price per share of NeuroBo common stock) plus 3,030,000 (the number of NeuroBo shares issued in the Pre-Closing Financing) multiplied by $8.00 (the price per share of the Pre-Closing Financing). The combined shares of 13,930,000 represent the assumed NeuroBo shares as of the signing of the Merger Agreement (on a fully-diluted, as-converted basis and with giving effect to the Pre-Closing Financing). The figures in the discussion of NeuroBo's implied equity value above have been adjusted to reflect the NeuroBo Stock Split (as defined below).

*Implied Total Enterprise Value*

Ladenburg Thalmann calculated an implied total enterprise value for NeuroBo of $94.0 million by subtracting an assumed NeuroBo net cash balance of approximately $24.2 million from the implied equity value of approximately $118.2 million.

***Analysis of Selected Initial Public Offering Transactions as of the Date of the Opinion***

Ladenburg Thalmann reviewed the initial public offerings ("IPOs") of 11 biopharmaceutical companies which completed an IPO since May 2015 and whose lead product at the time of its IPO was in Phase 2 and/or Phase 3 of clinical development and focused on the neurology space. The total enterprise value at IPO is defined as the pre-money equity value plus indebtedness, liquidation value of preferred stock and non-controlling interest, minus cash and cash equivalents at the time of the IPO. Although the companies referred to below were used for comparison purposes, none of these companies is directly comparable to NeuroBo. Accordingly, an analysis of the results of such a comparison is not purely mathematical, but instead involves complex considerations and judgments concerning differences in historical and projected financial and operating characteristics of the selected companies below. These companies, which are referred to as the "Selected Precedent IPO Companies," were:

- AC Immune SA
- Aptinyx, Inc.
- Axsome Therapeutics Inc.
- Biohaven Pharmaceutical Holding Co Ltd.
- Colucid Pharmaceuticals Inc.
- Cortexyme Inc.
- Cynapsus Therapeutics Inc.

- Karuna Therapeutics Inc.
- Ovid Therapeutics Inc.
- Trevi Therapeutics Inc.
- Vtv Therapeutics Inc.

The Selected Precedent IPO Companies had total enterprise values between approximately $59 million and $445 million. Ladenburg Thalmann derived a median total enterprise value of approximately $242 million for the Selected Precedent IPO Companies. Using the 25th percentile and the 75th percentile of the implied total enterprise values, Ladenburg Thalmann then calculated a range of implied total equity values for NeuroBo (by adding an estimated $24.2 million in cash at Closing), which was $140.5 million to $370.3 million. This compares to NeuroBo's total equity value as per the Merger Agreement of approximately $118.2 million.

***Selected Precedent IPO Companies***

| First Trade Date | Company Name | Enterprise Value ($MM) |
|---|---|---|
| 6/27/19 | Karuna Therapeutics, Inc. | $ 187.7 |
| 5/8/19 | Cortexyme Inc. | 295.5 |
| 5/7/19 | Trevi Therapeutics Inc. | 116.0 |
| 6/20/18 | Aptinyx Inc. | 335.8 |
| 5/4/17 | Ovid Therapeutics Inc. | 242.1 |
| 5/3/17 | Biohaven Pharmaceutical Holding Co Ltd. | 356.2 |
| 9/22/16 | AC Immune SA | 444.7 |
| 11/19/15 | Axsome Therapeutics Inc. | 116.6 |
| 7/29/15 | Vtv Therapeutics Inc. | 374.2 |
| 6/17/15 | Cynapsus Therapeutics Inc. | 67.9 |
| 5/5/15 | CoLucid Pharmaceuticals Inc. | 59.3 |

***Analysis of Selected Publicly Traded Companies as of the Date of the Opinion***

Ladenburg Thalmann reviewed selected financial data of 15 publicly traded companies in the biopharmaceutical industry which had a lead candidate in Phase 2 and/or Phase 3 of clinical development and focused on the neurology space (the "Selected Publicly Traded Companies"). Although the companies referred to below were used for comparison purposes, none of those companies is directly comparable to NeuroBo. Accordingly, an analysis of the results of such a comparison is not purely mathematical but instead involves complex considerations and judgments concerning differences in historical and projected financial and operating characteristics of the selected companies below. The total enterprise values are based on closing stock prices on July 22, 2019. The Selected Publicly Traded Companies were:

- AC Immune SA
- Anavex Life Sciences Corp.
- Axsome Therapeutics, Inc.
- Biohaven Pharmaceutical Holding Company Ltd.
- Brainstorm Cell Therapeutics Inc.
- Cara Therapeutics, Inc.
- Concert Pharmaceuticals, Inc.

- Cortexyme, Inc.
- Intra-Cellular Therapies, Inc.
- Karuna Therapeutics, Inc.
- Marinus Pharmaceuticals, Inc.
- MediciNova, Inc.
- Ovid Therapeutics Inc.
- Trevi Therapeutics, Inc.
- Zynerba Pharmaceuticals, Inc.

The 15 Selected Publicly Traded Companies had implied total enterprise values between approximately $26 million and $1,793 million. Ladenburg Thalmann derived a median implied total enterprise value of $188 million for the Selected Publicly Traded Companies. Using the 25th percentile and the 75th percentile of the implied total enterprise values, Ladenburg Thalmann then calculated a range of implied total equity values for NeuroBo (by adding an estimated $24.2 million in cash at Closing), which was $143.8 million to $649.3 million. This compares to NeuroBo's total equity value as per the Merger Agreement of $118.2 million.

***Selected Publicly Traded Companies***

| Company Name | Enterprise Value ($MM) |
|---|---|
| Biohaven Pharmaceutical Holding Company Ltd. | $ 1,793.0 |
| Cortexyme, Inc. | 1,095.3 |
| Cara Therapeutics, Inc. | 898.5 |
| Axsome Therapeutics, Inc. | 853.0 |
| Karuna Therapeutics, Inc. | 397.1 |
| Intra-Cellular Therapies, Inc. | 371.4 |
| MediciNova, Inc. | 346.2 |
| Zynerba Pharmaceuticals, Inc. | 188.1 |
| Trevi Therapeutics, Inc. | 156.9 |
| Marinus Pharmaceuticals, Inc. | 151.7 |
| AC Immune SA | 125.8 |
| Anavex Life Sciences Corp. | 113.3 |
| Concert Pharmaceuticals, Inc. | 109.5 |
| Brainstorm Cell Therapeutics Inc. | 82.1 |
| Ovid Therapeutics Inc. | 25.5 |

***Analysis of Selected Precedent Transactions as of the Date of the Opinion***

Ladenburg Thalmann reviewed the financial terms, to the extent the information was publicly available, of the 12 most recent qualifying merger transactions since February 12, 2015 of companies in the biopharmaceutical industry, which had a lead candidate in Phase 2 and/or Phase 3 of clinical development and focused on the neurology space (the "Selected Precedent Transactions"). Although the precedent transactions referred to below were used for comparison purposes, none of the target companies is directly comparable to NeuroBo. Accordingly, an analysis of the results of such a comparison is not purely mathematical, but instead involves complex considerations and judgments concerning differences in historical and projected financial and operating characteristics of the companies involved and other factors that could affect the merger value of such companies and NeuroBo to which they are being compared. Ladenburg Thalmann reviewed the total enterprise values

of the target companies (including downstream milestone payments). These transactions, including the month and year each was closed, were as follows:

***Selected Precedent Transactions***

| Month and Year Closed | Target Company | Acquirer | Enterprise Value ($MM) |
|---|---|---|---|
| May 2019 | Abide Therapeutics, Inc. | H. Lundbeck A/S | $ 400.0 |
| March 2018 | Prexton Therapeutics S.A. | H. Lundbeck A/S | 1,111.9 |
| March 2017 | Neurovance Inc. | Otsuka Pharmaceutical Co. Ltd. | 250.0 |
| February 2017 | CoLucid Pharmaceuticals Inc. | Eli Lilly and Co. | 861.0 |
| November 2016 | Chase Pharmaceuticals Corp. | Allergan plc | 1,000.0 |
| October 2016 | Cynapsus Therapeutics Inc. | Sumitomo Dainippon Pharma Co. Ltd. | 635.0 |
| July 2016 | Afferent Pharmaceuticals Inc. | Merck & Co. Inc. | 1,250.0 |
| August 2015 | Naurex Inc. | Allergan plc | 560.0 |
| July 2015 | Spinifex Pharmaceuticals Pty. Ltd. | Novartis AG | 200.0 |
| May 2015 | Auspex Pharmaceuticals Inc. | Teva Pharmaceutical Industries Ltd. | 3,340.9 |
| March 2015 | Trophos S.A. | Roche Holding AG | 541.0 |
| February 2015 | Convergence Pharmaceuticals Ltd. | Biogen Idec Inc. | 675.0 |

The 12 Selected Precedent Transactions target companies had total enterprise values between approximately $200 million and $3,341 million. Ladenburg Thalmann derived a median total enterprise value of $655 million for the Selected Precedent Transactions. Using the 25th percentile and the 75th percentile of the implied total enterprise values, Ladenburg Thalmann then calculated a range of implied total equity values for NeuroBo (by adding an estimated $24.2 million in cash at Closing), which was approximately $530.0 million to $1,052.2 million. This compares to NeuroBo's total equity value as per the Merger Agreement of $118.2 million.

***Discounted Cash Flow Analysis as of the Date of the Opinion***

Ladenburg Thalmann estimated a range of total enterprise values for NeuroBo based upon the present value of NeuroBo's estimated after-tax unlevered free cash flows, which are set forth below in the section entitled "*The Merger—Financial Projections*". Ladenburg Thalmann reviewed and analyzed certain internal financial analyses, projections as to cost and expenses, reports, preliminary internal market opportunity assumptions and other information concerning NeuroBo prepared by the management of NeuroBo as well as projections for NeuroBo prepared by the management of Gemphire as adjusted and provided to Ladenburg Thalmann by management of Gemphire and utilized per instruction of Gemphire. NeuroBo provided Gemphire with certain assumptions that supported the market opportunity including market penetration data and launch years for NB-01. NB-02 was not considered in the financial analysis or projections by Gemphire. The yearly revenue assumptions were derived by Gemphire based on the market assumptions provided by NeuroBo, an analysis of the competitive landscape and data from various databases. Gemphire further adjusted the revenue assumptions in the years 2022 to 2033 by 65.0% to account for the probability of success given the clinical phase of development of NeuroBo's products. Please see the section entitled "*The Merger—Financial Projections*" for additional information on the unadjusted revenue projections of NB-01. All of the expense estimates were provided by Gemphire. Gemphire derived the relative percentages of the cost and expense information based on Gemphire's internal research and their knowledge of the clinical trial and commercialization process. Gemphire applied a rate of 65.0% to these expenses, which consisted of: cost of goods sold, research and development costs, general, administrative, marketing, and selling expenses and then subtracted all the risk-adjusted expenses in the projection period from

risk-adjusted revenue. Gemphire assumed a 28.0% corporate tax rate when calculating unlevered free cash flow and then added a 9.0% expense adjustment for working capital.

In performing this discounted cash flow analysis, Ladenburg Thalmann utilized discount rates ranging from 17% to 19%, which were selected based on the capital asset pricing model and the estimated weighted average cost of capital of the Selected Publicly Traded Companies, which was approximately 18.0%. This discounted cash flow analysis assumed that NeuroBo will have no terminal value after 2033, does not take into account NeuroBo's available NOLs, if any, and assigns no value to revenues beyond 2033.

The discounted cash flow analysis resulted in implied total equity values between $163.0 million and $220.0 million, based on the upper and lower range of the discount rates that Ladenburg Thalmann used in its analysis. This compares to NeuroBo's total equity value as per the Merger Agreement of $118.2 million.

The summary set forth above does not purport to be a complete description of all the analyses performed by Ladenburg Thalmann. The preparation of a fairness opinion involves various determinations as to the most appropriate and relevant methods of financial analysis and the application of these methods to the particular circumstances. Therefore, such an opinion is not readily susceptible to partial analysis or summary description. Ladenburg Thalmann did not attribute any particular weight to any analysis or factor considered by it, but rather made qualitative judgments as to the significance and relevance of each analysis and factor. Accordingly, notwithstanding the separate factors summarized above, Ladenburg Thalmann believes, and advised the Gemphire Board, that its analyses must be considered as a whole. Selecting portions of its analyses and the factors considered by it without considering all analyses and factors could create an incomplete view of the process underlying its Opinion. In performing its analyses, Ladenburg Thalmann made numerous assumptions with respect to industry performance, business and economic conditions and other matters, many of which are beyond the control of Gemphire and NeuroBo. These analyses performed by Ladenburg Thalmann are not necessarily indicative of actual values or future results, which may be significantly more or less favorable than suggested by such analyses. In addition, analyses relating to the value of businesses do not purport to be appraisals or to reflect the prices at which businesses or securities may actually be sold. Accordingly, such analyses and estimates are inherently subject to uncertainty, being based upon numerous factors or events beyond the control of the parties or their respective advisors. None of Gemphire, NeuroBo, Ladenburg Thalmann or any other person assumes responsibility if future results are materially different from those projected. The analyses supplied by Ladenburg Thalmann and its Opinion were among several factors taken into consideration by the Gemphire Board in making its decision to enter into the Merger Agreement and should not be considered as determinative of such decision.

Ladenburg Thalmann was selected by the Gemphire Board to render an opinion to the Gemphire Board because Ladenburg Thalmann is a nationally recognized investment banking firm and because, as part of its investment banking business, Ladenburg Thalmann is continually engaged in the valuation of businesses and their securities in connection with mergers, negotiated underwritings, secondary distributions of listed and unlisted securities, private placements and valuations for corporate and other purposes. In addition, in the ordinary course of its business, Ladenburg Thalmann and its affiliates as well as investment funds in which Ladenburg Thalman or its affiliates may have financial interests may trade the securities of Gemphire, or any other party that may be involved in the merger and/or their respective affiliates, for its own account and for the accounts of their customers, and, accordingly, may at any time acquire, hold or sell a long or short position, trade or otherwise effect transactions in such securities or in financial instruments of such entities, or investments in such entities. In the three years preceding the date hereof, Ladenburg Thalmann has not received any fees from Gemphire, aside from the fees described below. In the three years preceding the date hereof, Ladenburg Thalmann has not had a relationship with NeuroBo and has not received any fees from NeuroBo. Ladenburg Thalmann

and its affiliates may in the future seek to provide investment banking or financial advisory services to Gemphire and NeuroBo and/or certain of their respective affiliates and expect to receive fees for the rendering of these services.

The issuance of Ladenburg Thalmann's Opinion was reviewed and approved by a fairness opinion committee of Ladenburg Thalmann.

Pursuant to the engagement letter between Ladenburg Thalmann and Gemphire as of the time the Merger Agreement was approved, if the merger is consummated, Ladenburg Thalmann will be entitled to receive a transaction fee of $900,000 payable in cash at the Closing of the merger. Gemphire has also paid an initial fee of $100,000 and an Opinion fee of $300,000 upon delivery of its Opinion. Additionally, Gemphire has agreed to reimburse Ladenburg Thalmann for its out-of-pocket expenses up to $50,000 and has agreed to indemnify Ladenburg Thalmann against certain liabilities, including liabilities under the federal securities laws. The terms of the fee arrangement with Ladenburg Thalmann, which are customary in transactions of this nature, were negotiated at arm's length between Gemphire and Ladenburg Thalmann, and the Gemphire Board was aware of the arrangement, including the fact that a portion of the fee payable to Ladenburg Thalmann is contingent upon the completion of the merger.

**Financial Projections**

The information set forth below is included solely by Gemphire to give Gemphire Stockholders access to the financial projections (the "Projections") and other information that were relied upon by Ladenburg Thalmann in connection with the rendering of its Opinion as described in the section entitled "*The Merger—Opinion of the Gemphire Financial Advisor*." These Projections were also made available to the Gemphire Board in connection with the presentation of financial analyses by Ladenburg Thalmann. The inclusion of information about these Projections in this proxy statement/prospectus/information statement should not be regarded as an indication that Gemphire or any other recipient of this information considered, or now considers, this information to be predictive of actual future results.

Neither Gemphire nor NeuroBo, as a matter of course, publicly discloses forecasts, internal projections as to future performance, revenues, earnings or other results of operations due to the inherent unpredictability and subjectivity of underlying assumptions and projections. However, as part of the consideration of the merger and the Gemphire Board's review of strategic alternatives, Gemphire management reviewed key market assumptions provided by NeuroBo and prepared the Projections for NeuroBo's business, as provided below.

NeuroBo's future financial results may materially differ from those expressed in the Projections due to factors that are beyond NeuroBo's ability to control or predict. NeuroBo cannot make any assurances that the Projections will be realized or that NeuroBo's future financial results will not materially vary from the Projections. **In particular, the Projections should not be utilized as public guidance**.

The Projections were prepared for internal use and were not prepared with a view toward public disclosure or with a view toward compliance with published guidelines of the SEC regarding projections, the guidelines established by the American Institute of Certified Public Accountants for preparation and presentation of prospective financial information, or GAAP. Neither NeuroBo nor NeuroBo's or Gemphire's independent registered public accounting firm, nor any other independent accountants, have compiled, examined or performed any procedures with respect to the prospective financial information included below, or expressed any opinion or any other form of assurance with respect thereto or the achievability of the results reflected in such projections, and none of the foregoing assumes any responsibility for such information.

Gemphire Stockholders are urged to review the section entitled "*Risk Factors*" in this proxy statement/ prospectus/information statement for a description of the risks relating to the merger, NeuroBo's business and Gemphire's business and for a description of risk factors with respect to Gemphire's business, Gemphire's most recent SEC filings. Gemphire Stockholders should also read the section entitled "*Cautionary Statement Concering Forward-Looking Statements*" in this proxy statement/prospectus/information statement for additional information regarding the risks inherent in forward-looking information such as the Projections.

The Projections included below are not being included herein to influence Gemphire Stockholders' decision whether to vote in favor of any proposal contained in this proxy statement/prospectus/information statement. **In light of the foregoing factors and the uncertainties inherent in the Projections, stockholders are cautioned not to place undue, if any, reliance on the Projections included in this proxy statement/prospectus/information statement**.

Ladenburg Thalmann estimated a range of total enterprise values for NeuroBo based upon the present value of NeuroBo's estimated after-tax unlevered free cash flows, which are set forth above in the section entitled "*The Merger—Opinion of the Gemphire Financial Advisor—Discounted Cash Flow Analysis*." Ladenburg Thalmann reviewed and analyzed certain internal financial analyses, projections as to cost and expenses, reports, preliminary internal market opportunity assumptions and other information concerning NeuroBo prepared by the management of NeuroBo as well as projections for NeuroBo prepared by the management of Gemphire as adjusted and provided to Ladenburg Thalmann by management of Gemphire and utilized per instruction of Gemphire. NeuroBo provided Gemphire with certain assumptions which supported the market opportunity including market penetration data and launch years for NB-01. NB-02 was not considered in the financial analysis or projections by Gemphire. The yearly revenue assumptions were derived by Gemphire based on the market assumptions provided by NeuroBo, an analysis of the competitive landscape and data from various databases. Gemphire further adjusted the revenue assumptions in the years 2022 to 2033 by 65.0% to account for the probability of success given the clinical phase of development of NeuroBo's product candidates. Additional assumptions made by Gemphire included:

- NB-01 would be developed initially to treat painful diabetic neuropathy and chemotherapy-induced peripheral neuropathy in the U.S.
- Only the U.S. market was considered.
- Wholesale price for NB-01 in the U.S. of $4,500.
- NB-01 assumed to launch in 2024 for painful diabetic neuropathy and in 2029 for chemotherapy-induced peripheral neuropathy.
- Cost of goods sold is 10.0%.
- Average R&D expenditures are $38.1 million per year from 2019 to 2025. R&D expenditures as a percentage of revenue averages 10.0% from 2026 until 2028 and 5.0% from 2029 to 2033.
- Average G&A expenditures are $4.2 million a year through the launch in 2024 and averages $31.6 million a year thereafter.
- There is no commercial expense until 2022. In 2022, $0.6 million is spent with $15.6 million the year after. $62.0 million is being spent in 2024 and $78.0 million being spent in 2025. Commercial expense then averages 23.4% as a percent of revenue from 2026 to 2033.

Stock based compensation expense is excluded from the discounted cash flow analysis. In performing the discounted cash flow analysis, Ladenburg Thalmann applied discount rates ranging from 17.0% to 19.0%, which were selected based on the capital asset pricing model and the estimated weighted average cost of capital of the Comparable Publicly Traded Companies. The discounted cash

flow analysis assumed that NeuroBo has no terminal value, does not account for any available NOLs and assigns no value to revenues beyond 2033.

***Financial Projections for NeuroBo as Prepared by Ladenburg Thalmann***

| Years | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk Adjusted Revenue | | | | | | | | | | | | | | | |
| NB-01 | — | — | — | — | — | $ 60.8 | $ 249.3 | $ 538.7 | $ 735.7 | $ 799.0 | $ 818.6 | $ 841.1 | $ 870.8 | $ 893.8 | $ 906.9 |
| COGS | — | — | — | — | — | (6.1) | (24.9) | (53.9) | (73.6) | (79.9) | (81.9) | (84.1) | (87.1) | (89.4) | (90.7) |
| Research and Development | $ (14.0) | $ (62.3) | $ (79.4) | $ (38.1) | $ (16.9) | (18.3) | (37.4) | (53.9) | (73.6) | (79.9) | (40.9) | (42.1) | (43.5) | (44.7) | (45.3) |
| Commercial | — | — | — | (0.6) | (15.6) | (62.0) | (78.0) | (110.4) | (160.8) | (198.2) | (207.9) | (207.9) | (207.9) | (207.9) | (207.9) |
| Third Party Obligations/Royalties | — | — | — | — | (9.7) | (19.5) | (13.0) | (9.7) | — | — | — | — | — | — | — |
| G&A | (3.0) | (4.5) | (4.8) | (3.3) | (3.5) | (6.2) | (22.8) | (25.1) | (27.6) | (30.4) | (32.5) | (34.1) | (35.7) | (37.0) | (39.0) |
| **Net cash flows from operations** | **$ (17.0)** | **$ (66.8)** | **$ (84.2)** | **$ (42.1)** | **$ (45.7)** | **$ (51.2)** | **$ 73.3** | **$ 285.7** | **$ 400.2** | **$ 410.7** | **$ 455.4** | **$ 472.9** | **$ 496.6** | **$ 514.8** | **$ 524.0** |
| **Taxes (28%)** | — | — | — | — | — | — | $ (20.5) | $ (80.0) | $ (112.1) | $ (115.0) | $ (127.5) | $ (132.4) | $ (139.0) | $ (144.1) | $ (146.7) |
| **Working Capital Adjustments** | $ (1.5) | $ (6.0) | $ (7.6) | $ (5.8) | $ (6.3) | $ (14.7) | $ (20.9) | $ (27.6) | $ (36.3) | $ (42.7) | $ (39.0) | $ (39.4) | $ (39.8) | $ (40.1) | $ (40.5) |
| **Unlevered Free Cash Flow** | **$ (18.5)** | **$ (72.8)** | **$ (91.8)** | **$ (47.9)** | **$ (52.1)** | **$ (65.9)** | **$ 31.8** | **$ 178.1** | **$ 251.8** | **$ 253.0** | **$ 288.9** | **$ 301.2** | **$ 317.8** | **$ 330.5** | **$ 336.8** |

**Interests of Gemphire Directors and Executive Officers in the Merger**

In considering the recommendation of the Gemphire Board with respect to issuing shares of Gemphire common stock as contemplated by the Merger Agreement and the other matters to be acted upon by Gemphire Stockholders at the Gemphire annual meeting, Gemphire Stockholders should be aware that certain members of the Gemphire Board and certain of Gemphire's executive officers have interests in the merger that may be different from, or in addition to, the interests of Gemphire Stockholders. These interests may present them with actual or potential conflicts of interest, and these interests, to the extent material, are described below.

Each of the Gemphire Board and the NeuroBo Board was aware of these potential conflicts of interest and considered them, among other matters, in reaching their respective decisions to approve the Merger Agreement and the merger, and to recommend, as applicable, that Gemphire Stockholders approve the proposals to be presented to Gemphire Stockholders for consideration at the Gemphire annual meeting as contemplated by this proxy statement/prospectus/information statement, and that NeuroBo Stockholders sign and return the written consent as contemplated by this proxy statement/prospectus/information statement.

***Ownership Interests***

As of September 30, 2019, Gemphire's directors and executive officers owned, in the aggregate, 14% of the shares of Gemphire common stock, which for purposes of this subsection includes shares of restricted stock but excludes any Gemphire common stock issuable upon exercise or settlement of Gemphire Options or Gemphire Warrants.

The table below sets forth information regarding the ownership of Gemphire common stock as of September 30, 2019 by Gemphire's directors and named executive officers excluding Gemphire common stock issuable upon exercise of or settlement of Gemphire Options or Gemphire Warrants.

| Non-Employee Directors and Named Executive Officers | Number of Shares of Common Stock Held |
|---|---|
| P. Kent Hawryluk | 113,951 |
| Kenneth Kousky | 26,935(2) |
| Pedro Lichtinger | 74,833(2) |
| Andrew Sassine | 151,264(2) |
| Seth Reno | 118,286(3) |
| Charles L. Bisgaier | 1,450,362(3)(4) |
| Steven Gullans | 300,000(5) |
| Jeffrey Mathiesen | 14,134(6) |
| Lee Golden | —(7) |

(1) Represents (a) 32,062 shares held by Mr. Hawryluk and (b) 81,889 shares held by the P. Kent Hawryluk Revocable Trust, of which Mr. Hawryluk is the trustee. Mr. Hawryluk resigned from the Gemphire Board in February 2019. Such amounts are based on Mr. Hawryluk's Form 4 filings.

(2) Includes 15,000 shares of restricted stock granted on July 24, 2019, which shares shall fully vest immediately prior to the Effective Time.

(3) Includes 100,000 shares of restricted stock granted on July 24, 2019, which shares shall fully vest immediately prior to the Effective Time, provided that the holder of such shares has executed and delivered to Gemphire a release and waiver of claims and such release is not subsequently revoked.

(4) Represents (a) 1,348,914 shares held by Dr. Bisgaier, (b) 82,220 shares held by The Charles L. Bisgaier Trust dated November 8, 2000, of which Dr. Bisgaier is the trustee, and (c) 19,228 shares held by Bisgaier Family, LLC, of which Dr. Bisgaier is a manager.

(5) Includes 300,000 shares of restricted stock granted on July 24, 2019, which shares shall fully vest immediately prior to the Effective Time, provided that Dr. Gullans has executed and delivered to Gemphire a release and waiver of claims and such release is not subsequently revoked.

(6) Mr. Mathiesen's employment with Gemphire ended in September 2018. Such amount is based on such former executive's Form 4 filings.

(7) Dr. Golden's employment with Gemphire ended in September 2018. Such amount is based on such former executive's Form 4 filings.

***Effect of Merger on Gemphire Options and Stock Awards***

As of September 30, 2019, Gemphire's directors and current executive officers owned, in the aggregate, unvested Gemphire stock options covering 440,665 shares of Gemphire common stock and vested Gemphire stock options covering 771,174 shares of Gemphire common stock.

Prior to the Closing of the merger, the Gemphire Board will adopt appropriate resolutions and take all other actions necessary and appropriate to provide that each outstanding and unexercised Gemphire stock option, whether vested or unvested, will be accelerated in full effective as of immediately prior to the Effective Time. Effective as of the Effective Time, each outstanding and unexercised Gemphire stock option having an exercise price per share less than the Gemphire Closing

Price will be automatically exercised in full and, in exchange therefor, each former holder of any such automatically exercised Gemphire stock options will be entitled to receive a number of shares of Gemphire common stock calculated by dividing (a) the product of (i) the total number of shares of Gemphire common stock previously subject to such Gemphire stock option, and (ii) the excess of the Gemphire Closing Price over the exercise price per share of the Gemphire common stock previously subject to such Gemphire stock option by (b) the Gemphire Closing Price. Each outstanding and unexercised Gemphire stock option that has an exercise price equal to or greater than the Gemphire Closing Price will be terminated and cease to exist as of immediately prior to the Effective Time for no consideration.

The following table presents certain information concerning the outstanding Gemphire stock options held by Gemphire's directors and current executive officers as of September 30, 2019. The per share exercise price of all vested and unvested options held by all directors and current executive officers is greater than $0.73 (the average closing trading price per share of Gemphire common stock over the first five business days following the public announcement of the merger).

| | Number of Shares Underlying Unexercised Options Exercisable | Number of Shares Underlying Unexercised Options Unexercisable |
|---|---|---|
| *Non-Employee Directors* | | |
| P. Kent Hawryluk(1) | — | — |
| Kenneth Kousky | 63,816 | 15,000 |
| Pedro Lichtinger | 87,862 | 15,000 |
| Andrew Sassine | 87,862 | 15,000 |
| *Executive Officers* | | |
| Seth Reno | 182,799 | 66,500 |
| Charles L. Bisgaier | 131,500 | 66,500 |
| Steven Gullans | 428,750 | 51,250 |
| Jeffrey Mathiesen(2) | 221,593 | — |
| Lee Golden(3) | 172,792 | — |

(1) Mr. Hawryluk resigned from the Gemphire Board in February 2019.

(2) Mr. Mathiesen's employment with Gemphire ended in September 2018. Such amount is based on such former executive's Form 4 filings.

(3) Dr. Golden's employment with Gemphire ended in September 2018. Such amount is based on such former executive's Form 4 filings.

The restricted stock awards granted to Gemphire directors, officers and employees on July 24, 2019 provide that the restricted shares shall fully vest immediately prior to the Effective Time of the merger.

***Director Positions and Consultancy Agreements Following the Merger***

Dr. Steven Gullans, currently the President and Chief Executive Officer of Gemphire, is expected to be terminated from his position as an officer of Gemphire as of the Effective Time of the merger. After the Effective Time of the merger, it is expected that Dr. Gullans will be appointed to the board of directors of the combined company. See the section entitled "*Gemphire Directors, Officers and Corporate Governance—Non-Employee Director Compensation*" in this proxy statement/prospectus/information statement for a description of compensation expected to be paid to directors of the combined company.

Dr. Charles Bisgaier, currently the Chief Scientific Officer of Gemphire, and Seth Reno, currently the Chief Commercial Officer of Gemphire, are each expected to be terminated from their respective positions as officers of Gemphire as of the Effective Time of the merger. After the Effective Time of the merger, it is expected that Dr. Bisgaier and Mr. Reno will continue to provide services to the combined company as consultants. The specific terms of these consulting relationships are still being discussed.

***Merger-Related Compensation of Executive Officers and Directors***

*Executive Officers*

As described in the section entitled "*Executive Compensation—Agreements with Gemphire's Named Executive Officers"* in this proxy statement/prospectus/information statement, Gemphire has entered into employment agreements with Dr. Steven Gullans, Chief Executive Officer and President, Dr. Charles Bisgaier, Chief Scientific Officer and Chairman of the Gemphire Board, and Seth Reno, Chief Commercial Officer, which provide for certain benefits upon the executive officer's termination of employment, including in connection with a change of control transaction. On July 24, 2019, Gemphire entered into amendments to the employment agreements to reduce the cash severance obligation owed to each executive in connection with the termination of their employment upon the Closing of the merger. Pursuant to the amendments, if the merger is completed, Dr. Gullans, Dr. Bisgaier and Mr. Reno will receive a lump sum cash payment within thirty days after the effective date of the merger in an amount equal to $75,000, $330,000 and $297,536, respectively, subject to a reduction for withholding tax, in lieu of the cash compensation such executives would otherwise be entitled to receive pursuant to such executives' employment agreements.

In connection with the executives agreeing to the amendments, on July 24, 2019, Gemphire issued each of Dr. Gullans, Dr. Bisgaier and Mr. Reno a restricted stock award representing 300,000, 100,000 and 100,000 shares, respectively, of Gemphire common stock. The restricted stock awards were made pursuant to Restricted Stock Grant Notices and Restricted Stock Agreements, which provide that such shares shall fully vest immediately prior to the Effective Time, provided that the executive has executed and delivered to Gemphire a release and waiver of claims and such release is not subsequently revoked.

Gemphire shall automatically reacquire for no consideration all unvested shares upon the earliest to occur of (i) the executive's termination of continuous service (unless such termination results from the completion of the merger prior to March 31, 2020) or (ii) March 31, 2020 if the merger has not been completed. The holders of the restricted stock awards have all rights and privileges of a holder of Gemphire common stock, including for purposes of voting and receiving dividends.

On September 30, 2019, Gemphire entered into second amendments to the employment agreements of Dr. Gullans, Dr. Bisgaier and Mr. Reno, pursuant to which Dr. Gullans's annual base salary was reduced to $24,996, Dr. Bisgaier's annual base salary was reduced to $54,636 and Mr. Reno's annual base salary was reduced to $206,256. The second amendment with Mr. Reno also allows him to provide consulting services to NeuroBo.

*Non-Employee Directors*

On July 24, 2019, Gemphire's non-employee directors agreed to waive payment of the cash retainer for the remainder of 2019 otherwise payable to such directors pursuant to Gemphire's non-employee director compensation policy.

Grants of 15,000 shares of restricted stock were also made to each of Gemphire's non-employee directors on July 24, 2019. The non-employee director award agreements do not require the execution and delivery of a release and waiver of claims.

***Golden Parachute Compensation***

This section sets forth the information required by Item 402(t) of Regulation S-K regarding the compensation that is based on or otherwise relates to the merger and that is payable or may become payable to Gemphire's named executive officers. This compensation is referred to as "golden parachute" compensation by the applicable SEC disclosure rules. For purposes of calculating these amounts, Gemphire has assumed:

- the Effective Time occurred on December 31, 2019;
- a price per share of Gemphire common stock of $0.73, which represents the average closing trading price of Gemphire common stock over the first five business days following the first public announcement of the merger;
- the employment of each of Dr. Gullans, Dr. Bisgaier and Mr. Reno will be terminated on such date in a manner that entitles the named executive officer to receive the severance payments and benefits under the terms of the amended employment agreements with such named executive officers (as described above). The employment of each of named executive officer is expected to be terminated effective as of the Closing of the merger; and
- no named executive officer enters into new agreements or otherwise becomes legally entitled to, prior to the Effective Time, additional compensation or benefits.

The amounts set forth in the table are estimates based on multiple assumptions that may or may not actually occur, including assumptions described below and elsewhere in this proxy statement/prospectus/information statement and in the footnotes to the table. As a result, the actual amounts, if any, that a named executive officer will receive, may materially differ from the amounts set forth in the table.

For a narrative description of the terms and conditions applicable to the payments quantified in the table below, see "*—Merger-Related Compensation of Executive Officers and Directors*" above.

| Name | Cash ($)(1) | Equity ($)(2) | Prerequisites/ Benefits ($)(3) | Total ($) |
|---|---|---|---|---|
| Steven Gullans, Ph.D. | $ 75,000 | $ 219,000 | $ 19,985 | $ 313,985 |
| Charles L. Bisgaier, Ph.D. | $ 330,000 | $ 73,000 | $ — | $ 403,000 |
| Seth Reno | $ 297,536 | $ 73,000 | $ 22,536 | $ 393,072 |
| Jeffrey Mathiesen(4) | $ — | $ — | $ — | $ — |
| Lee Golden, M.D.(5) | $ — | $ — | $ — | $ — |

(1) The cash payments to Dr. Gullans, Dr. Bisgaier and Mr. Reno are set forth in their amended employment agreements, as described above and are payable in a lump sum within 30 days after the effective date of the merger if Gemphire consummates the merger and Gemphire elects not to extend the term or terminates such executive's employment other than due to death, disability or for cause or such executive terminates for good reason provided that the executive has executed and delivered to Gemphire a release and waiver of claims and such release is not subsequently revoked.

(2) The amounts listed in this column include the aggregate value of outstanding unvested Gemphire Options and shares of restricted stock, the vesting of which will accelerate immediately prior to the Effective Time of the merger provided that the executive has executed and delivered to Gemphire a release and waiver of claims and such release is not subsequently revoked. For Gemphire Options, the value is calculated based on the number of shares subject to the option multiplied by the implied per share value less the

applicable exercise price. As each such option has a per share exercise price that exceeds $0.73 (the average closing trading price of Gemphire common stock over the first five business days following the public announcement of the merger), this table assumes that each such option's per share exercise price will exceed the Gemphire Closing Price and accordingly will be terminated immediately prior to the Effective Time for no consideration. For restricted stock, the value is calculated based on the number of shares multiplied by $0.73, the average closing trading price of Gemphire common stock over the first five business days following public announcement of the merger.

(3) The amounts in this column represent 12 months of COBRA premiums Gemphire intends to provide to Dr. Gullans and Mr. Reno. Dr. Bisgaier is not expected to receive any COBRA benefit.

(4) Mr. Mathiesen's employment with Gemphire ended in September 2018.

(5) Dr. Golden's employment with Gemphire ended in September 2018.

***Indemnification of the Gemphire Officers and Directors***

The Merger Agreement provides that, for a period of six years following the Effective Time of the merger, Gemphire will fulfill and honor in all respects the obligations of Gemphire which existed prior to the date of the Merger Agreement to indemnify Gemphire's present and former directors and officers and their heirs, executors and assigns.

The Merger Agreement provides that, for a period of six years following the Effective Time of the merger, the provisions relating to the indemnification and elimination of liability for monetary damages set forth in the Gemphire Certificate of Incorporation and Gemphire Bylaws will not be amended, repealed or otherwise modified in any manner that would adversely affect the rights thereunder of individuals who, at the effective time, were directors or officers of Gemphire, unless such modification is required by law.

The Merger Agreement also provides that, for a period of six years following the Effective Time of the merger, Gemphire will maintain either a directors' and officers' liability insurance policy or a "tail" policy covering existing directors and officers of Gemphire.

**Interests of NeuroBo Directors and Executive Officers in the Merger**

In considering the recommendation of the NeuroBo Board with respect to approving the merger, NeuroBo Stockholders should be aware that certain members of the NeuroBo Board and executive officers of NeuroBo have interests in the merger that may be different from, or in addition to, interests they have as NeuroBo Stockholders. Certain of NeuroBo's executive officers and directors have options, subject to vesting, to purchase shares of NeuroBo common stock that will be converted into and become options to purchase shares of Gemphire common stock. Certain of NeuroBo's directors and executive officers are expected to become directors and executive officers of the combined organization as described in the section entitled "*Management Following the Merger*" upon the Closing, and all of NeuroBo's directors and executive officers are entitled to certain indemnification and liability insurance coverage pursuant to the terms of the Merger Agreement.

***Ownership Interests***

Certain of NeuroBo's directors and executive officers or entities affiliated currently hold shares of NeuroBo capital stock, and these shares of NeuroBo capital stock will be converted into the right to receive shares of Gemphire common stock at the Effective Time pursuant to the terms of the Merger Agreement. The table below sets forth the anticipated ownership of NeuroBo common stock and NeuroBo preferred stock by NeuroBo's directors and executive officers immediately prior to the

Closing based on their ownership of NeuroBo common stock and NeuroBo preferred stock as of September 30, 2019 (adjusted to reflect the NeuroBo Stock Split).

| Directors and Executive Officers | Number of Shares of NeuroBo Common Stock Held Immediately Prior to the Closing | Number of Shares of NeuroBo Preferred Stock Held Immediately Prior to the Closing |
|---|---|---|
| Na Yeon (Irene) Kim | — | 5,900,000(1) |
| Roy Freeman, M.D. | 1,273,904(2) | — |
| Jeong Gyun Oh | 2,095,616(3) | 210,000(4) |
| John L. Brooks, III | — | — |
| Mark Versavel, M.D., Ph.D., M.B.A. | — | — |
| Nandan Padukone, Ph.D., M.B.A. | — | — |
| Nicola Shannon | — | — |
| Jeong Gu Kang, Ph.D. | — | — |

(1) Consists of 3,500,000 shares of Series A Preferred Stock held by The E&Healthcare Investment Fund II, 900,000 shares of Series B Preferred Stock held by The E&Healthcare Investment Fund No. 6 and 1,500,000 shares of Series B Preferred Stock held by The E&Healthcare Investment Fund No.7. Ms. Kim is the Chief Executive Officer of E&I Investment. E&Investment is the sole general partner of The E&Healthcare Investment Fund II, The E&Healthcare Investment Fund No.6 and The E&Investment Healthcare Fund No.7, and has voting power over the shares held by The E&Healthcare Investment Fund II, The E&Healthcare Investment Fund No.6 and The E&Investment Healthcare Fund No.7. Ms. Kim is the Chief Executive Officer of E&Investment, and as such has voting and investment control over the shares held by E&Investment and its affiliated funds.

(2) Consists of 1,000,000 shares of common stock and 273,904 shares of common stock to be issued upon the conversion of the NeuroBo convertible notes (assuming the notes are converted on December 31, 2019).

(3) Consists of 1,000,000 shares of common stock and 1,095,616 shares of common stock to be issued upon the conversion of the NeuroBo convertible notes held by JK BioPharma Solutions, Inc. (assuming the notes are converted on December 31, 2019). Mr. Oh is the President and Chief Executive Officer of JK BioPharma Solutions Inc., and as such has voting and investment control over the shares held by JK BioPharma Solutions, Inc.

(4) Consists of 210,000 shares of Series B Preferred Stock held by Mr. Oh's wife, Eun Soo Kang.

***Treatment of NeuroBo Options***

Under the Merger Agreement, at the Effective Time, each outstanding and unexercised option to purchase shares of NeuroBo capital stock as of immediately prior to the Effective Time, whether or not vested, shall be converted into and become an option to purchase shares of Gemphire common stock, in accordance with the terms and conditions of such NeuroBo option immediately prior to the Effective Time. Certain of NeuroBo's directors and executive officers currently hold options, subject to vesting,

to purchase shares of NeuroBo common stock. The table below sets forth certain information with respect to such options.

| Option Holder Name | Grant Date | Expiration Date | Exercise Price ($) | Number of Shares of Common Stock Underlying Option as of September 30, 2019 | Number of Vested Shares of Common Stock Underlying Option as of September 30, 2019 |
|---|---|---|---|---|---|
| Mark Versavel, M.D., Ph.D., M.B.A. | 1/28/2019 | 1/28/2029 | 0.72 | 260,000 | 37,500 |
| | 1/31/2019 | 1/31/2029 | 0.72 | 40,000 | 25,000 |
| John L. Brooks, III | 1/28/2019 | 1/28/2029 | 0.72 | 360,000 | 62,500 |

***Management Following the Merger***

As described elsewhere in this proxy statement/prospectus/information statement, including in the section entitled "*Management Following the Merger*," certain of NeuroBo's current directors and executive officers and other designees of NeuroBo are expected to become directors or executive officers of Gemphire effective upon the Effective Time of the merger. Mr. Brooks and NeuroBo are also party to an Employment Agreement, dated July 24, 2019 to become effective upon the Effective Time as further described in the section entitled "*NeuroBo Executive Compensation-Employment Agreements and Potential Payments Upon Termination of Employment or Change in Control-Brooks Employment Agreement*."

***Indemnification and Insurance***

Pursuant to the Merger Agreement, from the Effective Time through the sixth anniversary of the date on which the Effective Time occurs, the surviving corporation in the merger is required to indemnify and hold harmless each person who is or has served as a director or officer of NeuroBo against all claims, losses, liabilities, damages, judgments, fines and reasonable fees, costs and expenses, including attorneys' fees and disbursements, incurred in connection with any claim, action, suit, proceeding or investigation, whether civil, criminal, administrative or investigative, arising out of or pertaining to the fact that such person is or was a director or officer of NeuroBo, to the fullest extent permitted under the DGCL for directors or officers of Delaware corporations. In addition, each such director and officer, or former director and officer, is entitled to advancement of expenses incurred in the defense of any such claim, action, suit, proceeding or investigation.

Pursuant to the Merger Agreement, the provisions of the Gemphire Certificate of Incorporation and the Gemphire Bylaws with respect to indemnification, advancement of expenses and exculpation of present and former directors and officers of Gemphire shall not be amended, modified or repealed for a period of six years from the Effective Time in a manner that would adversely affect the rights thereunder of individuals who, at or prior to the Effective Time, were officers or directors of Gemphire. The certificate of incorporation and bylaws of NeuroBo, as the surviving corporation in the merger, shall contain provisions no less favorable with respect to indemnification, advancement of expenses and exculpation of former and present directors and officers that are presently set forth in the Gemphire Certificate of Incorporation and Gemphire Bylaws.

The Merger Agreement also provides that Gemphire shall maintain directors' and officers' liability insurance policies commencing at the Closing of the merger, on commercially available terms and conditions with coverage limits customary for U.S. public companies similar situated to Gemphire.

**Limitation of Liability and Indemnification**

In addition to the indemnification required in the Gemphire Certificate of Incorporation, Gemphire has indemnification agreements with its directors. These agreements provide for the indemnification of the directors of Gemphire for all reasonable expenses and liabilities incurred in connection with any action or proceeding brought against them by reason of the fact that they are or were agents of Gemphire. Gemphire believes that these certificate of incorporation provisions and indemnification agreements are necessary to attract and retain qualified persons as directors.

**Form of the Merger**

The Merger Agreement provides that at the Effective Time, Merger Sub will be merged with and into NeuroBo. Upon the consummation of the merger, NeuroBo will continue as the surviving corporation and will be a wholly-owned subsidiary of Gemphire.

After completion of the merger, assuming Proposal No. 3 is approved by Gemphire Stockholders at the Gemphire annual meeting, Gemphire will be renamed "NeuroBo Pharmaceuticals, Inc." and expects to trade on Nasdaq under the symbol "NRBO."

**Merger Consideration and Exchange Ratio**

***Merger Consideration***

At the Effective Time:

- each share of NeuroBo common stock outstanding immediately prior to the Effective Time (excluding certain shares to be canceled pursuant to the Merger Agreement and shares held by holders of NeuroBo common stock who have exercised and perfected appraisal rights or dissenters' rights as more fully described in the section entitled "*The Merger—Appraisal Rights and Dissenters' Rights*" in this proxy statement/prospectus/information statement) will automatically be converted into the right to receive a number of shares of Gemphire common stock equal to the Exchange Ratio, subject to adjustment to account for the Gemphire Reverse Stock Split and as described below (prior to the Effective Time, the outstanding shares of NeuroBo preferred stock and the outstanding NeuroBo convertible notes will be converted into NeuroBo common stock); and

- each option to purchase shares of NeuroBo's common stock outstanding and unexercised immediately prior to the Effective Time will be assumed by Gemphire and will become an option, subject to vesting, to purchase shares of Gemphire common stock with the number of shares of Gemphire common stock underlying such options and the exercise prices for such options adjusted to reflect the Exchange Ratio and the Gemphire Reverse Stock Split; and

***Exchange Ratio***

The Exchange Ratio is calculated using a formula intended to allocate existing NeuroBo Securityholders (on a fully-diluted basis) a percentage of the combined company. Based on current estimates, the Exchange Ratio is currently estimated to be approximately 29.2911 pre-split shares of Gemphire common stock (before giving effect to the Gemphire Reverse Stock Split which is expected to be effective immediately prior to the consummation of the merger and after giving effect to NeuroBo's Preferred Stock Conversion and the Convertible Note Conversion), assuming (i) NeuroBo's convertible notes are converted as of December 31, 2019, (ii) NeuroBo raises gross proceeds of $24,240,000 in its Pre-Closing Financing and (iii) Gemphire has a Parent Cash Amount of negative $3.4 million at Closing.

These estimates are subject to adjustment prior to Closing of the merger, including adjustments to account for (i) the effect of the Gemphire Reverse Stock Split, (ii) the issuance of any additional shares of Gemphire or NeuroBo common stock prior to the consummation of the Merger, (iii) the Convertible Note Conversion occurring before or after December 31, 2019, which would cause the NeuroBo convertible notes to convert into fewer or additional shares of NeuroBo common stock, and ultimately Gemphire common stock, (iv) the Parent Cash Amount at the Effective Time, to the extent negative and greater or less than negative $3.4 million, or (v) any aggregate gross proceeds received by NeuroBo in its Pre-Closing Financing before the Closing of the merger above $24,240,000 and up to and including $50 million (and as a result, Gemphire Securityholders could own more or less, and NeuroBo Securityholders could own more or less of the combined company than currently anticipated).

Based on the estimates set forth above and certain other assumptions, the former Gemphire Securityholders immediately prior to the merger are expected to own approximately 3.74% of the combined company and former NeuroBo Securityholders immediately prior to the merger are expected to own approximately 96.26% of the combined company, in each case, immediately following the merger, on a fully-diluted basis.

The Exchange Ratio formula is the quotient obtained by dividing the NeuroBo Merger Shares (defined below) by the NeuroBo Outstanding Shares (defined below), where:

- "Aggregate Valuation" means the sum of (i) the NeuroBo Valuation, plus (ii) the Gemphire Valuation.
- "NeuroBo Allocation Percentage" means the quotient (expressed as a percentage, with the percentage rounded to two decimal places) determined by dividing (i) the NeuroBo Valuation by (ii) the Aggregate Valuation.
- "NeuroBo Merger Shares" means the product determined by multiplying (i) the Post-Closing Gemphire Shares by (ii) the NeuroBo Allocation Percentage.
- "NeuroBo Outstanding Shares" means the total number of shares of NeuroBo capital stock outstanding immediately prior to the Effective Time expressed on a fully-diluted and as-converted to NeuroBo common stock basis, calculated based on the treasury stock method and assuming, without limitation or duplication, (i) the exercise of all NeuroBo Options outstanding as of immediately prior to the Effective Time, (ii) the effectiveness of the Preferred Stock Conversion, the Convertible Note Conversion and the NeuroBo Stock Split, (iii) the Pre-Closing Financing and (iv) the issuance of shares of NeuroBo capital stock in respect of all other outstanding options, restricted stock awards, warrants or rights to receive such shares, whether conditional or unconditional and including any outstanding options, warrants or rights triggered by or associated with the consummation of the merger (but excluding any shares of NeuroBo common stock reserved for issuance other than with respect to outstanding NeuroBo Options under the Neurobo 2018 Plan as of immediately prior to the Effective Time).
- "NeuroBo Valuation" means the sum of (i) $94,000,000, plus (ii) the aggregate amount of gross proceeds received by NeuroBo in the Pre-Closing Financing up to and including $50,000,000.
- "Gemphire Allocation Percentage" means the quotient (expressed as a percentage, with the percentage rounded to two decimal places) determined by dividing (i) the Gemphire Valuation by (ii) the Aggregate Valuation.
- "Gemphire Outstanding Shares" means the total number of shares of Gemphire common stock outstanding immediately prior to the Effective Time expressed on a fully-diluted basis and as converted to Gemphire common stock basis, and (i) assuming, without limitation or duplication, (A) the settlement in shares of each Gemphire Option outstanding as of the Effective Time, solely to the extent such Gemphire Option will not be canceled at the Effective Time or

exercised prior thereto, (B) the issuance of Gemphire common stock in respect of all other options, warrants or rights to receive such shares that will be outstanding immediately after the Effective Time, including the Gemphire Warrants, and (C) for the avoidance of doubt, the effectiveness of the Gemphire Reverse Stock Split, and (ii) without regard to and excluding any Gemphire Option canceled at the Effective Time.

- "Gemphire Valuation" means the sum of (i) $8,000,000, plus (ii) the Parent Cash Amount to the extent that the Parent Cash Amount is a negative number (in which case the Gemphire Valuation shall be reduced by the absolute value of the Parent Cash Amount).

- "Post-Closing Gemphire Shares" means the quotient determined by dividing (i) the Gemphire Outstanding Shares by (ii) the Gemphire Allocation Percentage.

The Merger Agreement does not include a price-based termination right, and there will be no adjustment to the total number of shares of Gemphire common stock that NeuroBo Stockholders will be entitled to receive for changes in the market price of Gemphire common stock. Accordingly, the market value of the shares of Gemphire common stock issued pursuant to the merger will depend on the market value of the shares of Gemphire common stock at the time the merger closes, and could vary significantly from the market value on the date of this proxy statement/prospectus/information statement.

No fractional shares of Gemphire common stock will be issuable to NeuroBo Stockholders pursuant to the merger. Instead, each NeuroBo Stockholder who would otherwise be entitled to receive a fraction of a share of Gemphire common stock, after aggregating all fractional shares of Gemphire common stock issuable to such stockholder, will be entitled to receive in cash the dollar amount, rounded to the nearest whole cent, without interest, determined by multiplying such fraction by the Gemphire Closing Price.

**Procedure for Exchanging NeuroBo Stock Certificates**

The Merger Agreement provides that, at the Effective Time, Gemphire will deposit with an exchange agent acceptable to Gemphire and NeuroBo certificates or evidence of book-entry shares representing the shares of Gemphire common stock issuable to NeuroBo Stockholders and a sufficient amount of cash to make payments in lieu of fractional shares.

The Merger Agreement provides that, promptly after the Effective Time, the exchange agent will mail to each record holder of NeuroBo capital stock immediately prior to the Effective Time a letter of transmittal and instructions for surrendering and exchanging NeuroBo stock certificates held by such record holder in exchange for certificates or book-entry shares of Gemphire common stock. Upon surrender of a NeuroBo stock certificate for exchange to the exchange agent, together with a duly signed letter of transmittal and such other documents as the exchange agent or Gemphire may reasonably require, the NeuroBo stock certificate surrendered will be cancelled and the holder of such NeuroBo stock certificate will be entitled to receive the following:

- a certificate or certificates or book-entry shares representing the number of whole shares of Gemphire common stock that such holder has the right to receive pursuant to the provisions of the Merger Agreement, and

- cash in lieu of any fractional share of Gemphire common stock.

From and after the Effective Time, until it is surrendered, each certificate that previously evidenced shares of NeuroBo common stock or shares of NeuroBo's preferred stock will be deemed to represent only the right to receive shares of Gemphire common stock, and cash in lieu of any fractional share of Gemphire common stock.

If any NeuroBo stock certificate has been lost, stolen or destroyed, Gemphire may, in its discretion, and as a condition precedent to the delivery of any book-entry shares of Gemphire common stock, require the owner of such lost, stolen or destroyed certificate to provide an affidavit claiming such certificate has been lost, stolen or destroyed and, at Gemphire's discretion, may also require such owner to post a bond indemnifying Gemphire against any claim suffered by Gemphire related to the lost, stolen or destroyed certificate or any Gemphire common stock issued in exchange thereof as Gemphire may reasonably request.

Gemphire will not pay dividends or other distributions on any shares of Gemphire common stock to be issued in exchange for shares of NeuroBo capital stock represented by any unsurrendered NeuroBo stock certificate until such NeuroBo stock certificate is surrendered as provided in the Merger Agreement.

**Determination of Gemphire's Parent Cash Amount**

NeuroBo's obligation to complete the merger is conditioned on Gemphire having a Parent Cash Amount of negative $3.75 million or more immediately prior to the Closing (as calculated pursuant to the terms of the Merger Agreement). The Closing could be delayed if NeuroBo and Gemphire are not able to agree upon the Parent Cash Amount. Furthermore, the Exchange Ratio is subject to adjustment to the extent the Parent Cash Amount at the Effective Time is negative.

Under the Merger Agreement, "Parent Cash Amount" is defined as (i) the sum of Gemphire's cash and cash equivalents, short-term investments, accrued investment interest receivable, and any prepaid refundable deposits of Gemphire *less* (ii) the sum of (A) Gemphire's accounts payable, accrued expenses, and debt, and (B) any Gemphire transaction expenses; in each case, as of such applicable date and determined in a manner consistent with the manner in which such items were historically determined and in accordance with GAAP and Gemphire's audited financial statements and Gemphire's unaudited interim balance sheet. Notwithstanding the foregoing, the Parent Cash Amount does not include any liabilities or payments by Gemphire of amounts covered by the Gemcabene Funding under the CVR Agreement.

Gemphire's Parent Cash Amount at Closing is subject to numerous factors, many of which are outside of Gemphire's control. If Gemphire's Parent Cash Amount immediately prior to the Closing is less than negative $3.75 million, based on the manner of calculating Parent Cash Amount pursuant to the Merger Agreement, Gemphire would be unable to satisfy a closing condition for the merger, in which case NeuroBo could elect to waive the condition or choose to not consummate the merger. Furthermore, the Exchange Ratio at the Closing will be subject to adjustment to the extent that Gemphire's Parent Cash Amount is negative (and as a result, Gemphire Stockholders and NeuroBo Stockholders could own more or less of the combined organization than currently anticipated), as described under the Section entitled "*The Merger—Merger Consideration and Exchange Ratio*."

**Effective Time of the Merger**

The Merger Agreement requires the parties to consummate the merger as promptly as practicable (and in any event within three business days) after all of the conditions to the consummation of the merger contained in the Merger Agreement are satisfied or waived. The merger will become effective upon the filing of a certificate of merger with the Secretary of State of the State of Delaware or at such later time as is agreed by Gemphire and NeuroBo and specified in the certificate of merger. Neither Gemphire nor NeuroBo can predict the exact timing of the consummation of the merger.

**Regulatory Approvals**

In the United States, Gemphire must comply with applicable federal and state securities laws and the rules and regulations of Nasdaq in connection with the issuance of shares of Gemphire common stock and the filing of this proxy statement/prospectus/information statement with the SEC.

**Tax Treatment of the Merger**

Subject to the Tax Opinion Representations and Assumptions (as defined below), in the opinion of Mintz, the merger will qualify as either a tax-free contribution pursuant to Section 351 of the Code or a "reorganization" within the meaning of Section 368(a) of the Code. Gemphire and Neurobo have each agreed to use their reasonable best efforts to cause the merger to qualify as either a tax-free contribution pursuant to Section 351 of the Code or a reorganization under Section 368(a) of the Code, and to not take any actions or cause any actions to be taken that would be reasonably expected to cause the merger to fail to so qualify. For a description of certain of the considerations regarding U.S. federal income tax consequences of the merger, see the section entitled "*—Material U.S. Federal Income Tax Consequences of the Merger*" below.

**Material U.S. Federal Income Tax Consequences of the Merger**

This discussion under "*The Merger—Material U.S. Federal Income Tax Consequences of the Merger*" pertaining to the U.S. federal income tax consequences of the merger, insofar as such discussion constitutes statements of U.S. federal income tax law or legal conclusions, in each case, subject to the limitations, exceptions, assumptions, qualifications and beliefs described in this proxy statement/prospectus/information statement, constitutes the opinion of Mintz as to the material U.S. federal income tax consequences of the merger to U.S. Holders (as defined below) of NeuroBo common stock.

The following is a discussion of the material U.S. federal income tax consequences of the merger to U.S. Holders (as defined below) who exchange their Neurobo common stock for Gemphire common stock in the merger. The discussion does not purport to be a complete analysis of all potential tax effects to such a U.S. Holder. The effects of other U.S. federal tax laws, such as estate and gift tax laws, and any applicable state, local or non-U.S. tax laws are not addressed in this discussion. This discussion is based on the Code, Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the IRS, in each case in effect as of the date hereof. These authorities may change or be subject to differing interpretations. Any such change or differing interpretation may be applied retroactively in a manner that could adversely affect a U.S. Holder. Neither Gemphire nor NeuroBo has sought or intend to seek any rulings from the IRS regarding the matters discussed below. There can be no assurance the IRS or a court will not take a position regarding the U.S. federal income tax consequences of the merger contrary to that discussed below. This discussion assumes that the merger will be consummated in accordance with the Merger Agreement and as described in this proxy statement/prospectus/information statement.

This discussion is limited to U.S. Holders that hold NeuroBo common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all U.S. federal income tax consequences relevant to a U.S. Holder's particular circumstances, including the impact of the alternative minimum tax or the Medicare contribution tax on net investment income. In addition, it does not address consequences relevant to U.S. Holders subject to special rules, including, without limitation:

- U.S. expatriates and former citizens or long-term residents of the United States;
- U.S. Holders whose functional currency is not the U.S. dollar;
- persons holding NeuroBo common stock as part of a hedge, straddle or other risk reduction strategy or as part of a conversion transaction or other integrated investment;

- banks, insurance companies, and other financial institutions;
- real estate investment trusts or regulated investment companies;
- brokers, dealers or traders in securities;
- "controlled foreign corporations," "passive foreign investment companies," and corporations that accumulate earnings to avoid U.S. federal income tax;
- S corporations, partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes (and investors therein);
- persons for whom Neurobo common stock constitutes "qualified small business stock" within the meaning of Section 1202 of the Code or as "Section 1244 stock" for purposes of Section 1244 of the Code;
- tax-exempt organizations or governmental organizations;
- persons subject to special tax accounting rules as a result of any item of gross income with respect to NeuroBo common stock being taken into account in an "applicable financial statement" (as defined in the Code);
- persons deemed to sell NeuroBo common stock under the constructive sale provisions of the Code;
- persons who hold or received NeuroBo common stock pursuant to the exercise of any employee stock option or otherwise as compensation; and
- tax-qualified retirement plans.

If an entity treated as a partnership for U.S. federal income tax purposes holds NeuroBo common stock, the tax treatment of a partner in the partnership will depend on the status of the partner, the activities of the partnership and certain determinations made at the partner level. Accordingly, partnerships holding NeuroBo common stock and the partners in such partnerships should consult their tax advisors regarding the U.S. federal income tax consequences to them.

THIS DISCUSSION IS FOR INFORMATION PURPOSES ONLY AND IS NOT TAX ADVICE. HOLDERS SHOULD CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES OF THE MERGER ARISING UNDER THE U.S. FEDERAL ESTATE OR GIFT TAX LAWS OR UNDER THE LAWS OF ANY STATE, LOCAL OR NON-U.S. TAXING JURISDICTION OR UNDER ANY APPLICABLE INCOME TAX TREATY.

For purposes of this discussion, a U.S. Holder is a beneficial owner of NeuroBo common stock that, for U.S. federal income tax purposes, is:

- an individual who is a citizen or resident of the United States;
- a corporation, or entity treated as a corporation, created or organized under the laws of the United States, any state thereof, or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust that (i) is subject to the primary supervision of a U.S. court and the control of one or more "United States persons" (within the meaning of Section 7701(a)(30) of the Code) over all of its substantial decisions or (ii) has a valid election in effect to be treated as a United States person for U.S. federal income tax purposes.

***U.S. Federal Income Tax Consequences of the Merger to U.S. Holders of NeuroBo Common Stock***

Subject to the Tax Opinion Representations and Assumptions (i) in the opinion of Mintz, the merger qualifies as either a tax-free contribution pursuant to Section 351 of the Code or a "reorganization" within the meaning of Section 368(a) of the Code, and (ii) the discussion contained herein under the heading "The Merger—Material U.S. Federal Income Tax Consequences of the Merger" pertaining to the U.S. federal income tax consequences of the merger, insofar as such discussion constitutes statements of U.S. federal income tax law or legal conclusions, represents Mintz's opinion as to the material U.S. federal income tax consequences of the merger to U.S. holders of NeuroBo common stock (together, the "Tax Opinion").

In rendering the Tax Opinion, Mintz assumes that: (i) the statements and facts concerning the merger set forth in this proxy statement/prospectus/information statement and in the Merger Agreement, are true and accurate in all respects, and that the merger will be completed in accordance with this proxy statement/prospectus/information statement and the merger agreement; (ii) the truth and accuracy of certain representations and covenants as to factual matters made by Gemphire, NeuroBo, and Merger Sub in the tax representation letters provided to counsel (the "Tax Representation Letters"); (iii) any representation made in the Merger Agreement or the Tax Representation Letters that are "to the best knowledge" (or similar qualification) of any person or party will be correct without such qualification; (iv) as to all matters for which a person or entity has represented, in the Merger Agreement or the Tax Representation Letters, that such person or entity is not a party to, does not have, or is not aware of, any plan, intention, understanding, or agreement, there is no such plan, intention, understanding, or agreement; and (v) that there will be no change in U.S. federal income tax rules or the interpretation thereof (collectively, the "Tax Opinion Representations and Assumptions"). If any of these assumptions is inaccurate, the tax consequences of the merger could differ from those described in this proxy statement/prospectus/information statement. If any of the Tax Opinion Representations and Assumptions is incorrect, incomplete or inaccurate, or is violated, the validity of the Tax Opinion may be affected and the U.S. federal income tax consequences of the merger could differ from those described in this proxy statement/prospectus/information statement.

An opinion of counsel represents counsel's best legal judgment but is not binding on the IRS or any court, and there can be no certainty that the IRS will not challenge the conclusions reflected in the Tax Opinion or that a court would not sustain such a challenge. Neither Gemphire nor NeuroBo intends to obtain a ruling from the IRS with respect to the tax consequences of the merger. If the IRS were to successfully challenge the status of the merger as both a tax-free contribution pursuant to Section 351 of the Code or a "reorganization" within the meaning of Section 368(a) of the Code, the U.S. federal income tax consequences would differ materially from those described in this proxy statement/prospectus/information statement.

Subject to the Tax Opinion Representations and Assumptions, in the opinion of Mintz:

- a U.S. Holder of shares of NeuroBo common stock generally will not recognize any gain or loss upon the exchange of such shares for shares of Gemphire common stock in the merger, except with respect to cash received in lieu of fractional shares (as discussed below);

- a U.S. Holder of shares of NeuroBo common stock will have a tax basis in the shares of Gemphire common stock received in the merger (including fractional shares deemed received and redeemed as described below) equal to the tax basis of the shares of NeuroBo common stock surrendered in exchange therefor;

- a U.S. Holder of shares of NeuroBo common stock will have a holding period for the shares of Gemphire common stock received in the merger (including fractional shares deemed received

and redeemed as described below) that includes its holding period for its shares of NeuroBo common stock surrendered in exchange therefor; and

- if a U.S. Holder of shares of NeuroBo common stock acquired different blocks of shares of NeuroBo common stock at different times or at different prices, the shares of Gemphire common stock received in the merger (including fractional shares deemed received and redeemed as described below) will be allocated pro rata to each block of shares of NeuroBo common stock, and the basis and holding period of such shares of Gemphire common stock will be determined on a block-for-block approach depending on the basis and holding period of each block of shares of NeuroBo common stock exchanged for such shares of Gemphire common stock.

***Cash in Lieu of Fractional Shares***

A U.S. Holder that receives cash in lieu of a fractional share of Gemphire common stock in the merger generally will be treated as having received such fractional share and then as having received such cash in redemption of the fractional share. Gain or loss generally will be recognized based on the difference between the amount of cash received in lieu of the fractional share of Gemphire common stock and the portion of the U.S. Holder's aggregate adjusted tax basis in the shares of Gemphire common stock surrendered that is allocable to the fractional share of Gemphire common stock deemed received. Such gain or loss generally will be long-term capital gain or loss if the U.S. Holder's holding period for its shares of NeuroBo common stock exceeds one year at the Effective Time.

***Tax Consequences if the Merger Fails to Qualify for the Intended Tax Treatment***

If the merger qualifies as neither a tax-free contribution pursuant to Section 351 of the Code nor a "reorganization" within the meaning of Section 368(a) of the Code, a U.S. Holder of NeuroBo common stock generally would recognize gain or loss for U.S. federal income tax purposes on each share of NeuroBo common stock surrendered in the merger in an amount equal to the difference between the fair market value, at the time of the merger, of the Gemphire common stock received in the merger (including any cash received in lieu of a fractional share) and such U.S. Holder's tax basis in the NeuroBo common stock surrendered in the merger. Gain or loss must be calculated separately for each block of NeuroBo common stock exchanged by such U.S. Holder if such blocks were acquired at different times or for different prices. Any gain or loss recognized generally would be capital gain or loss, and generally would be long-term capital gain or loss if the U.S. Holder's holding period in a particular block of NeuroBo common stock exceeds one year at the Effective Time of the merger. Long-term capital gain of non-corporate U.S. Holders (including individuals) generally is taxed at reduced U.S. federal income tax rates. The deductibility of capital losses is subject to limitations. A U.S. Holder's tax basis in shares of Gemphire common stock received in the merger would be equal to the fair market value thereof as of the Effective Time of the merger, and such U.S. Holder's holding period in such shares would begin on the day following the merger.

***Information Reporting and Backup Withholding***

If the merger qualifies a tax-free contribution pursuant to Section 351 of the Code, current Treasury Regulations require certain U.S. Holders who are "significant transferors" of NeuroBo common stock to comply with certain reporting requirements. Under Treasury Regulation Section 1.351-3, a significant transferor includes a person that transfers property to a corporation and receives stock of the transferee corporation in an exchange described in Section 351 of the Code if, immediately after the exchange, such person owns at least five percent (by vote or value) of the total outstanding stock of the transferee corporation and the stock owned by such person is publicly traded. If the merger qualifies as a "reorganization" under Section 368(a) of the Code, current Treasury Regulations require certain U.S. Holders who are "significant holders" of NeuroBo common stock to

comply with certain reporting requirements. Under Treasury Regulation Section 1.368-3, a significant holder includes a person who transfers stock of a target corporation and receives stock of an acquirer in a reorganization transaction if, immediately before the exchange, such person owned at least one percent (by vote or value) of the total outstanding stock of the target corporation or had a basis in non-stock securities of the target corporation of at least $1,000,000. In either case, the statement must include, among other things, the significant transferor's or significant holder's, as applicable, tax basis in the target stock surrendered, the fair market value of such stock, the date of the merger, and the name and employer identification number of each party to the merger. U.S. Holders should consult their tax advisors to determine whether they are required to provide either of the foregoing statements.

In addition, a U.S. Holder may be subject to information reporting and backup withholding when such holder receives cash in lieu of fractional shares of Gemphire common stock in the merger. Certain U.S. Holders are exempt from backup withholding, including corporations and certain tax-exempt organizations. A U.S. Holder will be subject to backup withholding if such holder is not otherwise exempt and:

- the holder fails to furnish the holder's taxpayer identification number, which for an individual is ordinarily his or her social security number;
- the holder furnishes an incorrect taxpayer identification number;
- the applicable withholding agent is notified by the IRS that the holder previously failed to properly report payments of interest or dividends; or
- the holder fails to certify under penalties of perjury that the holder has furnished a correct taxpayer identification number and that the IRS has not notified the holder that the holder is subject to backup withholding.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be allowed as a refund or a credit against a U.S. Holder's U.S. federal income tax liability, provided the required information is timely furnished to the IRS. U.S. Holders should consult their tax advisors regarding their qualification for an exemption from backup withholding and the procedures for obtaining such an exemption.

**The U.S. federal income tax consequences of the merger to a U.S. Holder are complex and will depend on such U.S. Holder's personal tax situation. Accordingly, each U.S. Holder is strongly urged to consult its own tax advisor with respect to the specific tax consequences of the merger, taking into account its personal circumstances.**

**Nasdaq Listing**

Gemphire common stock currently is listed on Nasdaq under the symbol "GEMP." Gemphire has agreed to use commercially reasonable efforts to maintain its existing listing on Nasdaq, and to obtain approval for listing on Nasdaq of the shares of Gemphire common stock that NeuroBo Stockholders will be entitled to receive pursuant to the merger and to obtain approval to have the combined company's common stock listed on Nasdaq. In addition, under the Merger Agreement, each party's obligation to complete the merger is subject to the satisfaction or waiver by each of the parties, at or prior to the merger, of various conditions, including that the existing shares of Gemphire common stock must have been continually listed on Nasdaq, and Gemphire must have caused the shares of Gemphire common stock to be issued in the merger to be approved for listing on Nasdaq as of the Closing of the merger.

Gemphire has filed an initial listing application with Nasdaq pursuant to Nasdaq "business combination" rules. If such this application is accepted, Gemphire anticipates that the shares of Gemphire common stock will be listed on Nasdaq following the Closing of the merger under the

trading symbol "NRBO." In order to meet the requirements for listing on Nasdaq, the post-merger combined company will be required to satisfy Nasdaq's initial listing requirements, including the financial and liquidity requirements for the applicable Nasdaq market tier upon which the post-merger combined company's shares will trade following the merger. Due to recent changes in these listing requirements, certain Nasdaq market tiers and standards require companies seeking to list to demonstrate a minimum "Market Value of Unrestricted Publicly Held Shares" as of the effective time of the closing of a business combination. Per current Nasdaq rules and requirements, the "Market Value of Unrestricted Publicly Held Shares" may not include the value of any securities subject to resale restrictions, including the types of restrictions set forth in the Gemphire and NeuroBo lock-up agreements as further discussed in the section entitled "*Agreements Related to the Merger—Lock-Up Agreements*" in this proxy statement/prospectus/information statement.

**Anticipated Accounting Treatment**

Although Gemphire is the legal acquirer and will issue shares of its common stock to affect the merger with NeuroBo, NeuroBo is considered the accounting acquirer. In accordance with the accounting guidance under ASU 2017-01, the merger is considered an asset acquisition. Accordingly, the assets and liabilities of Gemphire will be recorded as of the merger Closing date at the purchase price of the accounting acquirer, NeuroBo. NeuroBo will have to allocate the total purchase price among the individual net assets acquired on a fair value basis. Determination of fair value of certain assets acquired is dependent upon certain valuations that have yet to commence or progress to a stage where there is sufficient information for a definitive measurement. A final determination of these estimated fair values, which cannot be made prior to the completion of the transaction, will be based on the actual net tangible assets of Gemphire that exist as of the date of the completion of the transaction. Therefore, the actual purchase price allocation may differ from the amounts reflected in the unaudited pro forma condensed combined financial statements. The unaudited pro forma condensed consolidated financial statements include the accounts of Gemphire since the effective date of merger and NeuroBo since inception.

**Appraisal Rights and Dissenters' Rights**

If the merger is completed, NeuroBo Stockholders who do not deliver a written consent approving the merger are entitled to appraisal rights under Section 262 of the DGCL, or Section 262, provided that they comply with the conditions established by Section 262. Holders of Gemphire common stock are not entitled to appraisal rights under Delaware law in connection with the merger.

The discussion below is not a complete summary regarding a NeuroBo Stockholders's appraisal rights under Delaware law and is qualified in its entirety by reference to the text of the relevant provisions of Delaware law, which is attached as *Annex F*. NeuroBo Stockholders intending to exercise appraisal rights should carefully review *Annex F*. Failure to follow precisely any of the statutory procedures set forth in *Annex F* may result in a termination or waiver of these rights. This summary does not constitute legal or other advice, nor does it constitute a recommendation that NeuroBo Stockholders exercise their appraisal rights under Delaware law.

Under Section 262, where a merger is adopted by stockholders by written consent in lieu of a meeting of stockholders pursuant to Section 228 of the DGCL, either the constituent corporation before the effective date of the merger or the surviving corporation, within 10 days after the effective date of the merger, must notify each stockholder of the constituent corporation entitled to appraisal rights of the approval of the merger, the effective date of the merger and that appraisal rights are available.

If the merger is completed, within 10 days after the effective date of the merger NeuroBo will notify NeuroBo Stockholders that the merger has been approved, the effective date of the merger and

that appraisal rights are available to any NeuroBo Stockholder who has not approved the merger. Holders of shares of NeuroBo capital stock who desire to exercise their appraisal rights must deliver a written demand for appraisal to NeuroBo within 20 days after the date of mailing of that notice, and that stockholder must not have delivered a written consent approving the merger. A demand for appraisal must reasonably inform NeuroBo of the identity of the stockholder and that such stockholder intends thereby to demand appraisal of the shares of NeuroBo capital stock held by such stockholder. Failure to deliver a written consent approving the merger will not in and of itself constitute a written demand for appraisal satisfying the requirements of Section 262. All demands for appraisal should be addressed to NeuroBo Pharmaceuticals, Inc., 177 Huntington Avenue, Suite 1700, Boston, MA 02115, Attention: Secretary, and should be executed by, or on behalf of, the record holder of shares of NeuroBo capital stock. **ALL DEMANDS MUST BE RECEIVED BY NEUROBO WITHIN 20 DAYS AFTER THE DATE NEUROBO MAILS A NOTICE TO NEUROBO STOCKHOLDERS NOTIFYING THEM THAT THE MERGER HAS BEEN APPROVED, THE EFFECTIVE DATE OF THE MERGER AND THAT APPRAISAL RIGHTS ARE AVAILABLE TO ANY NEUROBO STOCKHOLDER WHO HAS NOT APPROVED THE MERGER.**

If you are a NeuroBo Stockholder, and fail to deliver a written demand for appraisal within the time period specified above, you will be entitled to receive the merger consideration for your shares of NeuroBo capital stock as provided for in the Merger Agreement, but you will have no appraisal rights with respect to your shares of NeuroBo capital stock.

To be effective, a demand for appraisal by a holder of shares of NeuroBo capital stock must be made by, or in the name of, the registered stockholder, fully and correctly, as the stockholder's name appears on the stockholder's stock certificate(s). Beneficial owners who do not also hold the shares of record may not directly make appraisal demands to NeuroBo. The beneficial owner must, in these cases, have the registered owner, such as a broker, bank or other custodian, submit the required demand in respect of those shares. If shares are owned of record in a fiduciary capacity, such as by a trustee, guardian or custodian, execution of a demand for appraisal should be made by or for the fiduciary; and if the shares are owned of record by more than one person, as in a joint tenancy or tenancy in common, the demand should be executed by or for all joint owners. An authorized agent, including an authorized agent for two or more joint owners, may execute the demand for appraisal for a stockholder of record; however, the agent must identify the record owner or owners and expressly disclose the fact that, in executing the demand, he or she is acting as agent for the record owner. A record owner, such as a broker, who holds shares as a custodian for others, may exercise the record owner's right of appraisal with respect to the shares held for one or more beneficial owners, while not exercising this right for other beneficial owners. In that case, the written demand should state the number of shares as to which appraisal is sought. Where no number of shares is expressly mentioned, the demand will be presumed to cover all shares held in the name of the record owner. In addition, the stockholder must continuously hold the shares of record from the date of making the demand through the Effective Time.

If you hold your shares of NeuroBo capital stock in a brokerage account or in other custodian form and you wish to exercise appraisal rights, you should consult with your bank, broker or other custodian to determine the appropriate procedures for the making of a demand for appraisal by the custodian.

At any time within 60 days after the Effective Time, any stockholder who has demanded an appraisal, but has neither commenced an appraisal proceeding or joined an appraisal proceeding as a named party, has the right to withdraw such stockholder's demand and accept the terms of the merger by delivering a written withdrawal to NeuroBo. If, following a demand for appraisal, you have withdrawn your demand for appraisal in accordance with Section 262, you will have the right to receive the merger consideration for your shares of NeuroBo capital stock.

Within 120 days after the Effective Time, any stockholder who has delivered a demand for appraisal in accordance with Section 262 will, upon written request to the surviving corporation, be entitled to receive a written statement setting forth the aggregate number of shares not voted in favor of the Merger Agreement and with respect to which demands for appraisal rights have been received and the aggregate number of holders of these shares. This written statement will be mailed to the requesting stockholder within 10 days after the stockholder's written request is received by the surviving corporation or within 10 days after expiration of the period for delivery of demands for appraisal, whichever is later. Within 120 days after the Effective Time, either the surviving corporation or any stockholder who has delivered a demand for appraisal in accordance with Section 262 may file a petition in the Delaware Court of Chancery demanding a determination of the fair value of the shares held by all such stockholders. Upon the filing of the petition by a stockholder, service of a copy of the petition must be made upon the surviving corporation. The surviving corporation has no obligation to file a petition in the Delaware Court of Chancery in the event there are dissenting stockholders, and Gemphire, which is expected to be the surviving corporation, has no present intent to file a petition in the Delaware Court of Chancery. Accordingly, the failure of a stockholder to file a petition within the period specified could nullify the stockholder's previously written demand for appraisal.

If a petition for appraisal is duly filed by a stockholder and a copy of the petition is delivered to the surviving corporation, the surviving corporation will then be obligated, within 20 days after receiving service of a copy of the petition, to provide the Delaware Court of Chancery with a duly verified list containing the names and addresses of all stockholders who have demanded an appraisal of their shares and with whom agreements as to the value of their shares have not been reached by the surviving corporation. After notice to dissenting stockholders who demanded appraisal of their shares, the Delaware Court of Chancery is empowered to conduct a hearing upon the petition, and to determine those stockholders who have complied with Section 262 and who have become entitled to the appraisal rights provided thereby. The Delaware Court of Chancery may require the stockholders who have demanded appraisal for their shares to submit their stock certificates to the Register in Chancery for notation thereon of the pendency of the appraisal proceedings; and if any stockholder fails to comply with that direction, the Delaware Court of Chancery may dismiss the proceedings as to that stockholder.

After determination of the stockholders entitled to appraisal of their shares, the Delaware Court of Chancery will appraise the "fair value" of the shares owned by those stockholders. This value will be exclusive of any element of value arising from the accomplishment or expectation of the merger, but may include a fair rate of interest, if any, upon the amount determined to be the fair value. When the value is determined, the Delaware Court of Chancery will direct the payment of the value, with interest thereon accrued during the pendency of the proceeding, if the Delaware Court of Chancery so determines, to the stockholders entitled to receive the same, upon surrender by the holders of the certificates representing those shares. At any time before the entry of judgment in the proceedings, the surviving corporation may pay to each stockholder entitled to appraisal an amount in cash, in which case interest shall accrue thereafter only upon the sum of (i) the difference, if any, between the amount so paid and the fair value of the shares subject to appraisal as determined by the Delaware Court of Chancery and (ii) interest theretofore accrued, unless paid at that time.

In determining fair value, and, if applicable, a fair rate of interest, the Delaware Court of Chancery is required to take into account all relevant factors. In Weinberger v. UOP, Inc., the Delaware Supreme Court discussed the factors that could be considered in determining fair value in an appraisal proceeding, stating that "proof of value by any techniques or methods which are generally considered acceptable in the financial community and otherwise admissible in court" should be considered, and that "fair price obviously requires consideration of all relevant factors involving the value of a company."

Section 262 provides that fair value is to be "exclusive of any element of value arising from the accomplishment or expectation of the merger." In Cede & Co. v. Technicolor, Inc., the Delaware Supreme Court stated that this exclusion is a "narrow exclusion [that] does not encompass known elements of value," but which rather applies only to the speculative elements of value arising from such accomplishment or expectation. In Weinberger, the Delaware Supreme Court construed Section 262 to mean that "elements of future value, including the nature of the enterprise, which are known or susceptible of proof as of the date of the merger and not the product of speculation, may be considered."

You should be aware that the fair value of your shares as determined under Section 262 could be more than, the same as, or less than the value that you are entitled to receive under the terms of the Merger Agreement.

Costs of the appraisal proceeding may be imposed upon the surviving corporation and the stockholders participating in the appraisal proceeding by the Delaware Court of Chancery as the Court deems equitable in the circumstances. Upon the application of a stockholder, the Delaware Court of Chancery may order all or a portion of the expenses incurred by any stockholder in connection with the appraisal proceeding, including, without limitation, reasonable attorneys' fees and the fees and expenses of experts, to be charged pro rata against the value of all shares entitled to appraisal. In the absence of such a determination of assessment, each party bears its own expenses. Any stockholder who had demanded appraisal rights will not, after the Effective Time, be entitled to vote shares subject to that demand for any purpose or to receive payments of dividends or any other distribution with respect to those shares, other than with respect to payment as of a record date prior to the Effective Time; however, if no petition for appraisal is filed within 120 days after the Effective Time, or if the stockholder delivers a written withdrawal of his or her demand for appraisal and an acceptance of the terms of the merger within 60 days after the Effective Time, then the right of that stockholder to appraisal will cease and that stockholder will be entitled to receive the merger consideration for shares of his or her NeuroBo capital stock pursuant to the Merger Agreement. Any withdrawal of a demand for appraisal made more than 60 days after the Effective Time may only be made with the written approval of the surviving corporation. No appraisal proceeding in the Delaware Court of Chancery will be dismissed as to any stockholder without the approval of the court.

Failure to follow the steps required by Section 262 for perfecting appraisal rights may result in the loss of appraisal rights. In view of the complexity of Section 262, stockholders who may wish to dissent from the merger and pursue appraisal rights should consult their legal advisors.

## THE MERGER AGREEMENT

*The following is a summary of the material terms of the Merger Agreement. A copy of the Merger Agreement is attached as Annex A to this proxy statement/prospectus/information statement and is incorporated by reference into this proxy statement/prospectus/information statement. The Merger Agreement has been attached to this proxy statement/prospectus/information statement to provide you with information regarding its terms. It is not intended to provide any other factual information about Gemphire, NeuroBo or Merger Sub. The following description does not purport to be complete and is qualified in its entirety by reference to the Merger Agreement. You should refer to the full text of the Merger Agreement for details of the merger and the terms and conditions of the Merger Agreement.*

*The Merger Agreement contains representations and warranties that Gemphire and Merger Sub, on the one hand, and NeuroBo, on the other hand, have made to one another as of specific dates. These representations and warranties have been made for the benefit of the other parties to the Merger Agreement and may be intended not as statements of fact but rather as a way of allocating the risk to one of the parties if those statements prove to be incorrect. In addition, the assertions embodied in the representations and warranties are qualified by information in confidential disclosure schedules exchanged by the parties in connection with signing the Merger Agreement. While Gemphire and NeuroBo do not believe that these disclosure schedules contain information required to be publicly disclosed under the applicable securities laws, other than information that has already been so disclosed, the disclosure schedules do contain information that modifies, qualifies and creates exceptions to the representations and warranties set forth in the attached Merger Agreement. Accordingly, you should not rely on the representations and warranties as current characterizations of factual information about Gemphire or NeuroBo, because they were made as of specific dates, may be intended merely as a risk allocation mechanism between Gemphire, Merger Sub and NeuroBo and are modified by the disclosure schedules.*

### General

Under the Merger Agreement, at the Effective Time, Merger Sub will merge with and into NeuroBo, with NeuroBo surviving as a wholly-owned subsidiary of Gemphire.

### Merger Consideration

At the Effective Time, each outstanding share of common stock of NeuroBo outstanding immediately prior to the Effective Time (excluding any shares of common stock of NeuroBo held as treasury stock and any dissenting shares) will be converted solely into the right to receive a specified number of shares of Gemphire common stock.

The Merger Agreement does not provide for an adjustment to the total number of shares of Gemphire common stock that NeuroBo Stockholders will be entitled to receive for changes in the market price of Gemphire common stock. Accordingly, the market value of the shares of Gemphire common stock issued pursuant to the merger will depend on the market value of the shares of Gemphire common stock at the time the merger closes, and could vary significantly from the market value on the date of this proxy statement/prospectus/information statement.

### Treatment of Gemphire Options and Warrants

#### *Gemphire Options*

Prior to the Closing of the merger, the Gemphire Board will adopt appropriate resolutions and take all other actions necessary and appropriate to provide that each outstanding, unexercised and unvested Gemphire Option will be accelerated in full effective as of immediately prior to the Effective Time. Effective as of the Effective Time, each outstanding and unexercised Gemphire Option having an exercise price per share less than the Gemphire Closing Price will be automatically exercised in full

and, in exchange therefor, each former holder of any such automatically exercised Gemphire Options will be entitled to receive a number of shares of Gemphire common stock calculated by dividing (a) the product of (i) the total number of shares of Gemphire common stock previously subject to such Gemphire Option, and (ii) the excess of the Gemphire Closing Price over the exercise price per share of the Gemphire common stock previously subject to such Gemphire stock option by (b) the Gemphire Closing Price. Each outstanding and unexercised Gemphire Option that has an exercise price equal to or greater than the Gemphire Closing Price will be terminated and cease to exist as of immediately prior to the Effective Time for no consideration.

***Gemphire Warrants***

Warrants to purchase shares of Gemphire common stock will remain outstanding according to their terms. The number of shares of Gemphire common stock underlying warrants and the exercise prices for such warrants will be appropriately adjusted to reflect the Gemphire Reverse Stock Split.

**Treatment of NeuroBo Options**

At the Effective Time, each option to purchase shares of NeuroBo capital stock outstanding and unexercised immediately prior to the Effective Time, whether or not vested, will be converted into an option to purchase shares of Gemphire common stock. From and after the Effective Time, each NeuroBo Option assumed by Gemphire may be exercised for such number of shares of Gemphire common stock as is determined by multiplying the number of shares of NeuroBo common stock subject to the option by the Exchange Ratio and rounding that result down to the nearest whole number of shares of Gemphire common stock. The per share exercise price of the converted option will be determined by dividing the existing exercise price of the option by the Exchange Ratio and rounding that result up to the nearest whole cent. Any restrictions on the exercise of any NeuroBo Option assumed by Gemphire will continue following the conversion and the term, exercisability, vesting schedules and other provisions of assumed NeuroBo Options will generally remain unchanged; provided, that any NeuroBo Options assumed by Gemphire may be subject to adjustment to reflect changes in Gemphire's capitalization after the Effective Time and that the Gemphire Board will succeed to the authority of the NeuroBo Board with respect to each assumed NeuroBo Option.

**Directors and Officers of Gemphire Following the Merger**

Pursuant to the Merger Agreement, each of the directors and officers of Gemphire who will not continue as directors or officers of Gemphire or the combined organization following the consummation of the merger, shall resign effective upon the Closing of the merger. Following the Closing of the merger, the Gemphire Board will be comprised of ten directors. Pursuant to the terms of the Merger Agreement, one such director will be designated by Gemphire, and nine of such directors will be designated by NeuroBo. It is anticipated that Steven Gullans, Ph.D. will remain as a director of Gemphire following the Closing of the merger, and that all other Gemphire directors will resign as of the Effective Time. Dr. Gullans shall appoint the remaining directors to the Gemphire Board to fill the resulting vacancies. John L. Brooks, III is expected to be appointed to the board as Chairman of the board of directors. It is anticipated that, in addition to Mr. Brooks, current NeuroBo directors, Na Yeon (Irene) Kim, Jeong Gyun Oh and Roy Freeman, M.D. and additional NeuroBo director designees, Alice C. Brennan, Steven Prelack, Michael C. Ferrara, Michael R. Jacobson and Tae Heum (Ted) Jeong will be appointed to the remaining director positions as designees of NeuroBo. It is anticipated that Gemphire's executive officers upon the Closing of the merger will be Mr. Brooks, President, Chief Executive Officer, and Interim Chief Financial Officer, Mark Versavel, M.D., Ph.D. and M.B.A., Secretary and Chief Medical Officer, Nandan Padukone, Ph.D., M.B.A., Senior Vice President, Business Development and Nicola Shannon, Vice President, Clinical Operations.

**Amendments to the Gemphire Certificate of Incorporation**

Stockholders of record of Gemphire common stock on the Record Date for the Gemphire annual meeting will also be asked to approve Proposal Nos. 2 and 3, which include a series of alternative amendments to the Gemphire Certificate of Incorporation to effect the Gemphire Reverse Stock Split and the Gemphire Name Change, in each case, upon consummation of the merger, each of which requires the affirmative vote of holders of shares representing a majority of all shares of Gemphire common stock outstanding on the Record Date for the Gemphire annual meeting and entitled to vote thereon.

**Conditions to the Completion of the Merger**

Each party's obligation to complete the merger is subject to the satisfaction or waiver by each of the parties, at or prior to the merger, of various conditions, which include the following:

- the registration statement on Form S-4, of which this proxy statement/prospectus/information statement is a part, must have been declared effective by the SEC in accordance with the Securities Act and must not be subject to any stop order or proceeding, or any proceeding threatened by the SEC, seeking a stop order that has not been withdrawn;

- there must not have been issued, and remain in effect, any temporary restraining order, preliminary or permanent injunction or other order preventing the consummation of the merger or any of the other transactions contemplated by the Merger Agreement by any court of competent jurisdiction or other governmental entity of competent jurisdiction, and no law, statute, rule, regulation, ruling or decree shall be in effect which has the effect of making the consummation of the merger or any of the other transactions contemplated by the Merger Agreement illegal;

- receiving the "required NeuroBo stockholder approval," whereby the holders of a (i) a majority of the outstanding shares of NeuroBo's common stock and preferred stock on an as-converted basis, (ii) at least two-thirds of the outstanding shares of NeuroBo's preferred stock, voting together as a single class on an as-converted basis, (iii) at least a majority of the outstanding shares of NeuroBo's Series A preferred stock (with respect to the conversion of the outstanding NeuroBo convertible notes into NeuroBo common stock only) must have adopted and approved the Merger Agreement and the contemplated transactions, including the conversion of the NeuroBo convertible notes;

- receiving the "required Gemphire stockholder approval," whereby (i) the holders of a majority of the shares of Gemphire common stock outstanding on the Record Date for the Gemphire annual meeting and entitled to vote thereon must have approved Proposal No. 2 and (ii) the holders of a majority of the shares of Gemphire common stock present in person or represented by proxy at the Gemphire annual meeting and entitled to vote thereon must have approved Proposal No. 1; and

- the existing shares of Gemphire common stock must have been continually listed on Nasdaq through the Closing of the merger, and Gemphire must have caused the shares of Gemphire common stock to be issued in the merger to be approved for listing on Nasdaq (subject to official notice of issuance) as of the Closing of the merger.

In addition, each party's obligation to complete the merger is subject to the satisfaction or waiver by that party of the following additional conditions:

- the representations and warranties regarding certain matters related to organization, authority, vote required, capitalization and financial advisors of the other party in the Merger Agreement must be true and correct in all material respects on the date of the Merger Agreement and on

the Closing date of the merger with the same force and effect as if made on the date on which the merger is to be completed or, if such representations and warranties address matters as of a particular date, then as of that particular date;

- the remaining representations and warranties of the other party in the Merger Agreement must be true and correct on the date of the Merger Agreement and on the Closing date of the merger with the same force and effect as if made on the date on which the merger is to be completed or, if such representations and warranties address matters as of a particular date, then as of that particular date, except in each case, or in the aggregate, where the failure to be so true and correct would not reasonably be expected to have a Company Material Adverse Effect or Parent Material Adverse Effect (defined below), as applicable (without giving effect to any references therein to any Company Material Adverse Effect or Parent Material Adverse Effect, as applicable, or other materiality qualifications);

- the other party to the Merger Agreement must have performed or complied with in all material respects all of such party's agreements and covenants required to be performed or complied with by it under the Merger Agreement at or prior to the Effective Time; and

- the other party must have delivered certain certificates and other documents required under the Merger Agreement for the Closing of the merger.

In addition, the obligation of Gemphire and Merger Sub to complete the merger is further subject to the satisfaction or waiver of the following conditions:

- there shall have been no change, circumstance, condition, development, effect, event, occurrence, result or state of fact that, considered together with all other such change, circumstance, condition, development, effect, event, occurrence, result or state of fact that have occurred prior to the applicable date of determination has or would reasonably be expected to have a material adverse effect on the business, condition (financial or otherwise), assets, liabilities or results of operations of NeuroBo or its subsidiaries, tor ability to consummate the transactions contemplated by the Merger Agreement, taken as a whole (a "Company Material Adverse Effect"); provided none of the following shall be taken into account for purposes of determining whether a Company Material Adverse Effect shall have occurred:

    - general business or economic conditions affecting the industries in which NeuroBo or Gemphire, as applicable, operates;

    - any acts of war, armed hostilities or terrorism;

    - any changes in financial, banking or securities markets;

    - any failure by NeuroBo to meet internal or analysts' expectations or projections or the results of operations;

    - any clinical trial programs or studies, including any adverse data, event or outcome arising out of or related to any such programs or studies;

    - any change in, or any compliance with or action taken for the purpose of complying with, applicable laws or GAAP, or interpretations thereof;

    - any effect resulting from the announcement or pendency of the merger or any related transactions;

    - continued losses from operations or decreases in cash balances of NeuroBo; and

    - the taking of any action by NeuroBo required to comply with the terms of the Merger Agreement.

- Gemphire shall have received (i) an original signed statement from NeuroBo that NeuroBo is not, and has not been at any time during the applicable period specified in Section 897(c)(1)(A)(ii) of the Code, a "United States real property holding corporation," as defined in Section 897(c)(2) of the Code, conforming to the requirements of Treasury Regulations Section 1.1445-2(c)(3) and 1.897-2(h), and (ii) an original signed notice to be delivered to the IRS in accordance with the provisions of Treasury Regulations Section 1.897-2(h)(2), together with written authorization for Gemphire to deliver such notice to the IRS on behalf of NeuroBo following the Closing of the merger, each dated as of the Closing date of the merger, duly executed by an authorized officer of NeuroBo, and in form and substance reasonably acceptable to Gemphire;

- certain agreements between NeuroBo and the NeuroBo Stockholders must have been terminated;

- all NeuroBo convertible notes must have been converted to NeuroBo common stock;

- all NeuroBo preferred stock must have been converted to NeuroBo common stock;

- NeuroBo must have completed the NeuroBo Stock Split; and

- NeuroBo must have received all of the proceeds of the Pre-Closing Financing (including the minimum gross proceeds of $24,240,000).

In addition, the obligation of NeuroBo to complete the merger is further subject to the satisfaction or waiver of the following conditions:

- there shall have been no change, circumstance, condition, development, effect, event, occurrence, result or state of fact that, considered together with all other such change, circumstance, condition, development, effect, event, occurrence, result or state of fact that have occurred prior to the applicable date of determination has or would reasonably be expected to have a material adverse effect on the business, condition (financial or otherwise), assets, liabilities or results of operations of Gemphire or its subsidiaries, tor ability to consummate the transactions contemplated by the Merger Agreement, taken as a whole (a "Parent Material Adverse Effect"); provided none of the following shall be taken into account for purposes of determining whether a Parent Material Adverse Effect shall have occurred:

    - any general business, economic or political conditions affecting the industry in which Gemphire operates;

    - any natural disaster or any acts of war, armed hostilities or terrorism;

    - any changes in financial, banking or securities markets;

    - any change in the stock price or trading volume of Gemphire common stock (it being understood, however, that any effects, changes, events, circumstances or developments causing or contributing to any change in stock price or trading volume of Gemphire common stock may be taken into account in determining whether a Parent Material Adverse Effect has occurred, unless such effects, changes, events, circumstances or developments or otherwise are specifically excepted);

    - any failure of Gemphire to meet internal or analysts' expectations or projections or the results of Gemphire;

    - any clinical trial programs or studies, including any adverse data, event or outcome arising out of or relating to any such programs or studies;

    - any change in, or any compliance with or action taken for the purpose of complying with any law or U.S. GAAP;

- resulting from the announcement of the Merger Agreement or the pendency of the transactions contemplated by the Merger Agreement; or
- resulting from the taking of any action by Gemphire that is required to be taken pursuant to the Merger Agreement.

- The Parent Cash Amount must not be less than negative 3.75 million dollars
- NeuroBo must have received the resignations of each of the officers and directors of Gemphire who are not to continue as officers and directors of the combined organization after the merger; and
- Gemphire must have caused the Gemphire Board to be constituted as required by the Merger Agreement.

**Representations and Warranties**

The Merger Agreement contains customary representations and warranties of Gemphire and NeuroBo for a transaction of this type relating to, among other things:

- corporate organization and power, and similar corporate matters;
- subsidiaries;
- authority to enter into the Merger Agreement and the related agreements;
- votes required for completion of the merger and approval of the proposals that will come before the Gemphire annual meeting and that will be the subject of NeuroBo's stockholder written consent;
- except as otherwise specifically disclosed pursuant to in the Merger Agreement, the fact that the consummation of the merger would not contravene or require the consent of any third-party;
- capitalization;
- financial statements and with respect to Gemphire, documents filed with the SEC and the accuracy of information contained in those documents;
- material changes or events;
- liabilities;
- title to assets;
- real property and leaseholds;
- intellectual property;
- the validity of material contracts to which the parties or their subsidiaries are a party and any violation, default or breach to such contracts;
- regulatory compliance, permits and restrictions;
- legal proceedings and orders;
- tax matters;
- employee and labor matters and benefit plans;
- environmental matters;
- insurance;

- any brokerage or finder's fee or other fee or commission in connection with the merger;
- transactions with affiliates;
- anti-bribery laws; and
- with respect to Gemphire, the valid issuance in the merger of Gemphire common stock and the opinion of Ladenburg Thalmann.

The representations and warranties are, in many respects, qualified by materiality and knowledge, and will not survive the merger, but their accuracy forms the basis of one of the conditions to the obligations of Gemphire and NeuroBo to complete the merger.

**No Solicitation**

Each of Gemphire and NeuroBo agreed that during the period commencing on the date of the Merger Agreement and ending on the earlier of the consummation of the merger or the termination of the Merger Agreement, except as described below, Gemphire and NeuroBo and any of their respective subsidiaries will not, nor will either party or any of its subsidiaries authorize any of the directors, officers, employees, agents, attorneys, accountants, investment bankers, advisors or representatives retained by it or any of its subsidiaries to, directly or indirectly:

- solicit, initiate or knowingly encourage, induce or facilitate the communication, making, submission or announcement of, any "acquisition proposal" or "acquisition inquiry" (each as defined below) or take any action that could reasonably be expected to lead to an acquisition proposal or acquisition inquiry;
- furnish any non-public information with respect to it to any person in connection with or in response to an acquisition proposal or acquisition inquiry;
- engage in discussions or negotiations with any person with respect to any acquisition proposal or acquisition inquiry;
- approve, endorse or recommend an acquisition proposal;
- execute or enter into any letter of intent or similar document or any contract contemplating or otherwise relating to any "acquisition transaction" as defined below (other than a confidentiality agreement permitted by the Merger Agreement); or
- publicly propose to do any of the above.

An "acquisition inquiry" means an inquiry, indication of interest or request for information (other than an inquiry, indication of interest or request for information made or submitted by NeuroBo, on the one hand, or Gemphire, on the other hand, to the other party) that would reasonably be expected to lead to an acquisition proposal.

An "acquisition proposal" means any offer or proposal, whether written or oral (other than an offer or proposal made or submitted by or on behalf of NeuroBo or any of its affiliates, on the one hand, or by or on behalf of Gemphire or any of its affiliates, on the other hand, to the other party) contemplating or otherwise relating to any "acquisition transaction."

An "acquisition transaction" means any transaction or series of related transactions involving:

- any merger, consolidation, amalgamation, share exchange, business combination, issuance or acquisition of securities, reorganization, recapitalization, tender offer, exchange offer or similar transaction: (i) in which Gemphire, NeuroBo or Merger Sub is a constituent entity, (ii) in which any individual, entity, governmental entity, or "group," as defined under applicable securities laws, directly or indirectly acquires beneficial or record ownership of securities representing

more than 20% of the outstanding securities of any class of voting securities of Gemphire, NeuroBo or Merger Sub or any of their respective subsidiaries or (iii) in which Gemphire, NeuroBo or Merger Sub or any of their respective subsidiaries issues securities representing more than 20% of the outstanding securities of any class of voting securities of such party or any of its subsidiaries; or

- any sale, lease, exchange, transfer, license, acquisition or disposition of any business or businesses or assets that constitute or account for 20% or more of the consolidated book value or the fair market value of the assets of Gemphire, NeuroBo or Merger Sub and their respective subsidiaries, as applicable, taken as a whole.

Notwithstanding the foregoing, before obtaining the applicable approvals of the stockholders of Gemphire or NeuroBo required to consummate the merger, as applicable, each party may furnish non-public information regarding such party and its subsidiaries to, and may enter into discussions or negotiations with, any third-party in response to a bona fide acquisition proposal made or received after the date of the Merger Agreement, which such party's board of directors determines in good faith, after consultation with such party's outside financial advisors or outside legal counsel, constitutes or is reasonably likely to result in a "superior offer," as defined below, if:

- neither such party nor any representative of such party has materially breached the solicitation provisions of the Merger Agreement described above;
- such party's board of directors concludes in good faith, based on the advice of outside legal counsel, that the failure to take such action is reasonably likely to be inconsistent with the fiduciary duties of such board of directors under applicable legal requirements;
- such party gives the other party at least two business days' prior written notice of the identity of the third-party and of that party's intention to furnish information to, or enter into discussions with, such third-party before furnishing any information or entering into discussions with such third-party;
- prior to furnishing any information, such party receives from the third-party an executed confidentiality agreement containing provisions at least as favorable to such party as those contained in the confidentiality agreement between Gemphire and NeuroBo; and
- at least two business days' prior to furnishing any non-public information to such third-party, such party furnishes the same non-public information to the other party to the extent not previously furnished.

A "superior offer" means an unsolicited, bona fide written acquisition proposal (with all references to 20% in the definition of acquisition transaction being treated as references to greater than 80% for these purposes) that (a) was not obtained or made as a direct or indirect result of a breach, or violation, of the Merger Agreement, and (b) is on terms and conditions that the board of directors of the party receiving the offer determines in good faith, based on such matters that it deems relevant (including the likelihood of consummation of the transaction), as well as any written offer by the other party to the Merger Agreement to amend the terms of the Merger Agreement, and following consultation with outside legal counsel and outside financial advisors, if any, are more favorable, from a financial point of view, to that party's stockholders than the terms of the merger. An acquisition proposal will not be considered a superior offer if any financing required to consummate the transaction contemplated by such acquisition proposal is not reasonably capable of being obtained by such third-party.

The Merger Agreement also provides that each party will promptly advise the other of the status and terms of, and keep the other party reasonably informed in all material respects with respect to, any acquisition proposal or any acquisition inquiry, indication of interest or request for information that

would reasonably be expected to lead to an acquisition proposal or any material change or proposed material change to that acquisition proposal or acquisition inquiry.

**Meetings of Gemphire Stockholders; Consent of NeuroBo Stockholders**

Gemphire is obligated under the Merger Agreement to call, give notice of and hold the Gemphire annual meeting for the purposes of considering the approval of the Merger Agreement and the transactions contemplated thereby, including the issuance of shares of Gemphire common stock to NeuroBo Stockholders in the merger and change of control of Gemphire resulting therefrom pursuant to Nasdaq rules.

NeuroBo is obligated under the Merger Agreement to obtain written consents of its stockholders sufficient to adopt the Merger Agreement thereby approving the merger and related transactions following the registration statement on Form S-4, of which this proxy statement/prospectus/information statement is a part, being declared effective by the SEC.

**Covenants; Conduct of Business Pending the Merger**

Except as set forth in the confidential disclosure schedules delivered to the other party concurrently with execution of the Merger Agreement, or as expressly required, contemplated or permitted by the Merger Agreement (including in connection with the sale and issuance of Gemphire common stock to be consummated prior to the Closing of the merger to the extent NeuroBo has consented in writing to such sale and issuance ("Parent Financing"), or in connection with certain sales or licenses of gemcabene, including the Beijing SL License Agreement (a "Permitted Disposition")), as required by law, or unless NeuroBo shall have provided written consent, during the period commencing on the date of the Merger Agreement and continuing until the earlier to occur of the Closing of the merger and the termination of the Merger Agreement, Gemphire will conduct its business and operations in the ordinary course consistent with past practices and in compliance with all applicable laws, regulations and certain contracts. Gemphire has also agreed that, subject to certain limited exceptions (including any Permitted Disposition or Parent Financing), without the consent of NeuroBo, it will not, during the period commencing on the date of the Merger Agreement and continuing until the earlier to occur of the Closing of the merger and the termination of the Merger Agreement:

- declare, accrue, set aside or pay any dividend or make any other distribution in respect of any shares of capital stock or repurchase, redeem or otherwise reacquire any shares of capital stock or other securities (except in connection with the payment of the exercise price and/or withholding taxes incurred upon the exercise, settlement or vesting of any award granted under a Gemphire employee benefit plan in accordance with the terms of such award in effect on the date of the Merger Agreement);

- sell, issue, grant, pledge, accelerate the vesting of (as applicable) or otherwise dispose of or encumber or authorize any of the foregoing with respect to: any capital stock or other security (except for Gemphire common stock issued upon the valid exercise of outstanding options or warrants to purchase shares of Gemphire common stock), any option, warrant or right to acquire any capital stock or any other security, or any instrument convertible into or exchangeable for any capital stock or other security of Gemphire;

- except as required to give effect to anything in contemplation of the Closing of the merger, amend the Gemphire Certificate of Incorporation, Gemphire Bylaws or other charter or organizational documents of Gemphire, or effect or be a party to any merger, consolidation, share exchange, business combination, recapitalization, reclassification of shares, stock split, reverse stock split, liquidation, dissolution or similar transaction except as related to the proposed transactions under the Merger Agreement;

- form any subsidiary or acquire any equity interest, business or other interest in any other entity, or enter into any joint venture with any other entity or enter into a new line of business;

- lend or advance money to any person (except for the advancement of expenses to employees, directors and consultants in the ordinary course of business); incur or guarantee any indebtedness for borrowed money; guarantee any debt securities of others; forgive or discharge in whole or in part any outstanding loans or advances, or prepay any indebtedness for borrowed money; or make any capital expenditure or commitment in excess of the amounts set forth in Gemphire's operating budget delivered to NeuroBo concurrently with the Merger Agreement;

- other than as required by law or the terms of a Gemphire employee plan in effect as of the date of the Merger Agreement, adopt, terminate, establish or enter into any Gemphire employee plan or increase costs under existing Gemphire employee plans; cause or permit any Gemphire employee plan to be amended in any material respect; issue, deliver, grant or sell or authorize or propose to the issuance, delivery, grant or sale of any equity interests; pay any bonus (including any transaction-related bonus or other similar success fee) or make any profit-sharing or similar payment to, or increase the amount of the wages, salary, commissions, fringe benefits or other compensation or remuneration payable to, any of its employees, officers or directors; increase the severance or change of control benefits offered to any current or new employees, directors or consultants; hire, terminate or give notice of termination to any officer or employee, other than termination for cause; or accelerate the vesting or extend the exercise period for outstanding equity awards;

- recognize any labor union, labor organization, work council or similar entity except as otherwise required by law and after using reasonable efforts to provide advance notice to NeuroBo;

- acquire any material asset or business or sell, lease or otherwise irrevocably dispose of any of its material assets or properties, or grant any encumbrance with respect to such assets or properties;

- sell, assign, transfer, license, sublicense, abandon or otherwise dispose of any Gemphire intellectual property rights or any intellectual property rights exclusively licensed to Gemphire or its subsidiaries;

- make, change or revoke any material tax election, fail to pay any income or other material tax as such tax becomes due and payable, file any amendment making any material change to any tax return, settle or compromise any income or other material tax liability, enter into any tax allocation, sharing, indemnification or other similar agreement or arrangement (other than customary commercial contracts entered into in the ordinary course of business the principal subject matter of which is not taxes), request or consent to any extension or waiver of any limitation period with respect to any claim or assessment for any income or other material taxes (other than pursuant to an extension of time to file any tax return granted in the ordinary course of business of not more than six months), or adopt or change any material accounting method in respect of taxes;

- enter into, materially amend or terminate certain material contracts;

- except as otherwise set forth in the Gemphire operating budget delivered to NeuroBo concurrently with the execution of the Merger Agreement Amendment, make any expenditures, incur any liabilities or discharge or satisfy any liabilities, in each case, in an amount that exceeds the Gemphire budget by $25,000 individually or that exceeds the aggregate amount of the Gemphire budget by $50,000;

- other than as required by law or U.S. GAAP, take any action to change accounting policies or procedures;

- initiate or settle any legal proceeding; or

- agree, resolve, offer or commit to do any of the foregoing.

NeuroBo has agreed that, except as permitted by the Merger Agreement (including the Pre-Closing Financing), as required by law, or unless Gemphire shall have provided written consent, during the period commencing on the date of the Merger Agreement and continuing until the earlier to occur of the Closing of the merger and the termination of the Merger Agreement, NeuroBo will conduct its business and operations in the ordinary course consistent with past practices and in compliance with all applicable laws, regulations and certain contracts. NeuroBo has also agreed that, except for certain actions expressly permitted in the Merger Agreement (including the Pre-Closing Financing), without the consent of Gemphire, it will not, during the period commencing on the date of the Merger Agreement and continuing until the earlier to occur of the Closing of the merger and the termination of the Merger Agreement:

- declare, accrue, set aside or pay any dividend or make any other distribution in respect of any shares of capital stock of NeuroBo or repurchase, redeem or otherwise reacquire any shares of capital stock or other securities (except for shares of NeuroBo common stock from terminated employees, directors or consultants of NeuroBo);

- sell, issue, grant, pledge, accelerate the vesting of (as applicable) or otherwise dispose of or encumber or authorize any of the foregoing actions with respect to: any capital stock or other security of NeuroBo or any of its subsidiaries (except for shares of NeuroBo common stock issued upon the valid exercise of NeuroBo Options); any option, warrant or right to acquire any capital stock or any other security, other than option grants to employees and service providers in the ordinary course of business; or any instrument convertible into or exchangeable for any capital stock or any other security of NeuroBo or its subsidiaries;

- except as required to give effect to anything in contemplation of the Closing of the merger, amend the certificate of incorporation, bylaws or other charter or organizational documents of NeuroBo or its subsidiaries, or effect or become a party to any merger, consolidation, share exchange, business combination, recapitalization, reclassification of shares, stock split, reverse stock split, liquidation, dissolution or similar transaction except as related to the proposed transactions under the Merger Agreement;

- form any subsidiary or acquire any equity interest, business or other interest in any other entity or enter into a joint venture with any other entity or enter into a new line of business;

- lend or advance money to any person (except for the advancement of expenses to employees, directors and consultants in the ordinary course of business); incur or guarantee any indebtedness for borrowed money; guarantee any debt securities of others; forgive or discharge in whole or in part any outstanding loans or advances, or prepay any indebtedness for borrowed money or make any capital expenditure or commitment in excess of the budgeted capital expenditure and commitment amounts set forth in the NeuroBo operating budget delivered to Gemphire concurrently with the execution of this Merger Agreement;

- other than as required by applicable law or the terms of any NeuroBo employee benefit plan: adopt, terminate, establish or enter into any employee plan; cause or permit any employee plan to be amended in any material respect; pay any bonus (including any transaction-related bonus or other similar success fee) or make any profit-sharing or similar payment to, or increase the amount of the wages, salary, commissions, benefits or other compensation or remuneration payable to, any of its directors, officers or employees, other than increases in base salary and annual cash bonus opportunities and payments made in the ordinary course of business consistent with past practice; increase the severance or change of control benefits offered to any current or new employees, directors or consultants; or terminate or give notice of termination to any officer, other than any termination for cause;

- recognize any labor union, labor organization, work council or similar entity except as otherwise required by law and after using reasonable efforts to provide advance notice to Gemphire;
- acquire any material asset or business or sell, lease or otherwise irrevocably dispose of any of its material assets or properties, or grant any encumbrance with respect to such assets or properties, except in the ordinary course of business;
- sell, assign, transfer, license, sublicense or otherwise dispose of any NeuroBo intellectual property rights or any intellectual property rights exclusively licensed to NeuroBo or its subsidiaries (other than pursuant to non-exclusive licenses in the ordinary course of business);
- make, change or revoke any material tax election, fail to pay any income or other material tax as such tax becomes due and payable, file any amendment making any material change to any tax return, settle or compromise any income or other material tax liability, enter into any tax allocation, sharing, indemnification or other similar agreement or arrangement (other than customary commercial contracts entered into in the ordinary course of business the principal subject matter of which is not taxes), request or consent to any extension or waiver of any limitation period with respect to any claim or assessment for any income or other material taxes (other than pursuant to an extension of time to file any tax return granted in the ordinary course of business of not more than six months), or adopt or change any material accounting method in respect of taxes;
- enter into any NeuroBo material contract outside the ordinary course of business, or materially amend or terminate certain material contracts;
- except as otherwise set forth in the NeuroBo budget, make any expenditures, incur any liabilities or discharge or satisfy any liabilities, in each case, in amounts that exceed the aggregate amount of the NeuroBo budget by $50,000;
- other than as required by law or U.S. GAAP, take any action to change accounting policies or procedures;
- initiate or settle any legal proceeding; or
- agree, resolve, offer or commit to do any of the foregoing.

**Other Agreements**

Each of Gemphire and NeuroBo has agreed to use its commercially reasonable efforts to cause to be taken all actions necessary to consummate the merger and the other transactions contemplated by the Merger Agreement. In connection therewith, each party has agreed to: file or otherwise submit all applications and notices required to be filed in connection with the merger and the other transactions contemplated by the Merger Agreement;

- file or otherwise submit all applications and notices required to be filed in connection with the merger and the other transactions contemplated by the Merger Agreement;
- use commercially reasonable efforts to obtain each consent reasonably required to be obtained in connection with the merger and the other transactions contemplated by the Merger Agreement;
- use commercially reasonable efforts to lift any injunction prohibiting, or any other legal bar to, the merger or the other transactions contemplated by the Merger Agreement; and
- use commercially reasonable efforts to satisfy the conditions precedent to the consummation of the transactions contemplated by the Merger Agreement.

Pursuant to the Merger Agreement, Gemphire and NeuroBo have further agreed that:

- Gemphire will use its commercially reasonable efforts to (i) maintain the listing of its common stock on Nasdaq until the Closing of the merger and to obtain approval for listing of the combined organization on Nasdaq and (ii) to the extent required by the rules and regulations of Nasdaq, to prepare and submit to Nasdaq a notification form for the listing of the shares of Gemphire common stock to be issued in connection with the merger and to cause such shares to be approved for listing (subject to official notice of issuance); (iii) to effect the Gemphire Reverse Stock Split; and (iv) to the extent required by Nasdaq Marketplace Rule 5110, to file an initial listing application for Gemphire common stock on Nasdaq and to cause such listing application to be conditionally approved prior to the Effective Time;

- for a period of six years after the Closing of the merger, Gemphire will indemnify each of the directors and officers of Gemphire and NeuroBo to the fullest extent permitted under the DGCL and will maintain directors' and officers' liability insurance for the directors and officers of Gemphire and NeuroBo; and

- Gemphire shall maintain directors' and officers' liability insurance policies commencing at the Closing of the merger, on commercially reasonable terms and conditions and with coverage limits customary for U.S. public companies similarly situated to Gemphire.

**Termination**

The Merger Agreement may be terminated at any time before the completion of the merger, whether before or after the required stockholder approvals to complete the merger have been obtained, as set forth below:

- by mutual written consent of Gemphire and NeuroBo;

- by either Gemphire or NeuroBo if the merger shall not have been consummated by February 22, 2020 (the "End Date"); provided, however, that this right to terminate the Merger Agreement will not be available to any party whose action or failure to act has been a principal cause of the failure of the merger to occur on or before the End Date and such action or failure to act constitutes a breach of the Merger Agreement; and provided, further, that the End Date shall be extended by 60 days upon request of either party if a request for additional information has been made by any government authority, or in the event that the SEC has not declared effective the registration statement on Form S-4, of which this proxy statement/prospectus/information statement is a part, by such date;

- by either Gemphire or NeuroBo if a court of competent jurisdiction or governmental entity has issued a final and no appealable order, decree or ruling or taken any other action that has the effect of permanently restraining, enjoining or otherwise prohibiting the merger or any of the other transactions contemplated by the Merger Agreement;

- by Gemphire if the required NeuroBo stockholder approval has not been obtained within 5 business days of the registration statement on Form S-4, of which this proxy statement/prospectus/information statement is a part, becoming effective; provided that this right to terminate the Merger Agreement will not be available to Gemphire once NeuroBo obtains such stockholder approval;

- by either Gemphire or NeuroBo if the Gemphire annual meeting shall have been held and completed and Gemphire Stockholders shall have taken a final vote and shall not have approved Proposal Nos. 1 and 2; provided, that Gemphire may not terminate the Merger Agreement pursuant to this provision if the failure to obtain the required Gemphire Stockholder approval

was directly caused by the action or failure to act of Gemphire and such action or failure to act constitutes a material breach by Gemphire of the Merger Agreement;

- by NeuroBo, at any time prior to receiving the required Gemphire Stockholder approval, if any of the following circumstances shall occur (each of the following, a "Gemphire triggering event"):

  - The Gemphire Board fails to recommend that the Gemphire Stockholders vote to approve Proposal Nos. 1 and 2 or withdraws or modifies its recommendation in a manner adverse to NeuroBo;

  - Gemphire fails to publicly reaffirm its board recommendation within 10 business days after NeuroBo so requests in writing;

  - The Gemphire Board, or any committee thereof, publicly approves, endorses or recommends any acquisition proposal;

  - Gemphire enters into any letter of intent or similar document or any contract relating to any acquisition proposal, other than a confidentiality agreement permitted pursuant to the Merger Agreement; or

  - Gemphire breaches the no solicitation provisions or the provisions regarding the Gemphire annual meeting set forth in the Merger Agreement;

- by Gemphire, at any time prior to receiving the required NeuroBo Stockholder approval, if any of the following circumstances shall occur (each a "NeuroBo triggering event"):

  - The NeuroBo Board fails to recommend that NeuroBo Stockholders vote to adopt the Merger Agreement, thereby approving the merger, or withdraws or modifies its recommendation in a manner adverse to Gemphire;

  - The NeuroBo Board, or any committee thereof, publicly approves, endorses or recommends any acquisition proposal; or

  - NeuroBo enters into any letter of intent or similar document or any contract relating to any acquisition proposal (other than a confidentiality agreement permitted pursuant to the Merger Agreement);

- by Gemphire or NeuroBo if the other party has breached any of its representations, warranties, covenants or agreements contained in the Merger Agreement or if any representation or warranty of the other party has become inaccurate, in either case such that the conditions to the Closing of the merger would not be satisfied as of time of such breach or inaccuracy, but if such breach or inaccuracy is curable, then the Merger Agreement will not terminate pursuant to this provision as a result of a particular breach or inaccuracy until the expiration of a 15-day period after delivery of written notice of such breach;

- by Gemphire, at any time, if all of conditions to the obligations of Gemphire and NeuroBo to complete the merger have been satisfied (other than those conditions that can only be satisfied by actions taken at Closing) or waived, other than meeting the requirements of the Pre-Closing Financing; or

- by Gemphire, at any time prior to receiving the required Gemphire Stockholder approval, upon Gemphire entering into a definitive agreement to effect a superior offer; provided, that Gemphire shall not enter into any such definitive agreement unless Gemphire shall have complied with its non-solicitation obligations under the Merger Agreement, the Gemphire Board determined in good faith, based on the advice of outside legal counsel, that the failure to take

such action would result in a breach of its fiduciary duties under applicable legal requirements and Gemphire concurrently pays the applicable termination fee described below.

**Termination Fee**

***Fee payable by Gemphire***

Gemphire must pay NeuroBo a termination fee of $1.0 million, reduced by any amount actually paid to NeuroBo as reimbursement of fees and expenses if:

- The Merger Agreement is terminated by either party if the merger is not consummated by the End Date, subject to the conditions described above;
- the Merger Agreement is terminated by either Gemphire or NeuroBo if the Gemphire annual meeting shall have been held and completed, and Gemphire Stockholders shall have not approved Proposal Nos. 1 and 2;
- Gemphire or Merger Sub has breached any of its representations, warranties, covenants or agreements contained in the Merger Agreement or if any representation or warranty of Gemphire or Merger Sub has become inaccurate, in either case such that the conditions to the Closing of the merger would not be satisfied as of the time of such breach or inaccuracy, subject to a 15-day cure period;
- at any time after the date of Merger Agreement and before the termination of the Merger Agreement, an acquisition proposal with respect to Gemphire was publicly announced, disclosed or otherwise communicated to the Gemphire Board; or
- within twelve months after the date of the termination of the Merger Agreement, Gemphire enters into a definitive agreement for or consummates an acquisition transaction (with all references to 20% in the definition of acquisition transaction being treated as references to 80%).

Gemphire must pay NeuroBo a termination fee of $1.0 million within five business days of such termination if:

- the Merger Agreement is terminated by NeuroBo if prior to the Gemphire Stockholder approval of Proposal Nos. 1 and 2, a Gemphire triggering event shall have occurred; or
- the Merger Agreement is terminated by Gemphire if, at any time prior to the approval of the issuance of Gemphire common stock in the Merger by the required Gemphire Stockholder vote, Gemphire enters into a definitive agreement to effect a superior offer.

Gemphire must reimburse NeuroBo for all reasonable fees and expenses incurred by NeuroBo in connection with the Merger Agreement and the transactions contemplated by such agreement, with these fees and expenses capped at $500,000, if (i) the Merger Agreement is terminated by NeuroBo because Gemphire or Merger Sub has breached any of its representations, warranties, covenants or agreements contained in the Merger Agreement or if any representation or warranty of Gemphire or Merger Sub has become inaccurate, in either case such that the conditions to the Closing of the merger would not be satisfied as of the time of such breach or inaccuracy, subject to a 15-day cure period; or (ii) NeuroBo fails to consummate the merger solely as a result of a Parent Material Adverse Effect.

***Fee payable by NeuroBo***

NeuroBo must pay Gemphire a termination fee of $1.0 million, reduced by any amount actually paid to Gemphire as reimbursement of fees and expenses if:

- the Merger Agreement is terminated by either party if the merger is not consummated by the End Date, subject to the conditions described above;
- the Merger Agreement is terminated by Gemphire if the required NeuroBo Stockholder approval has not been obtained within 5 business days of the registration statement on Form S-4, of which this proxy statement/prospectus/information statement is a part, becoming effective; provided, however, that once the required NeuroBo Stockholder approval has been obtained, Gemphire may not terminate the Merger Agreement pursuant to this section;
- NeuroBo has breached any of its representations, warranties, covenants or agreements contained in the Merger Agreement or if any representation or warranty of NeuroBo has become inaccurate, in either case such that the conditions to the Closing of the merger would not be satisfied as of the time of such breach or inaccuracy, subject to a 15-day cure period;
- at any time after the date of Merger Agreement and before the termination of the Merger Agreement, an acquisition proposal with respect to NeuroBo was publicly announced, disclosed or otherwise communicated to the NeuroBo Board; or
- within 12 months after the date of the termination of the Merger Agreement, NeuroBo enters into a definitive agreement for or consummates an acquisition transaction (with all references to 20% in the definition of acquisition transaction being treated as references to 80%).

NeuroBo must pay Gemphire a termination fee of $1.0 million within ten business days of such termination if the Merger Agreement is terminated by Gemphire if prior to obtaining the required NeuroBo Stockholder approval, an NeuroBo triggering event shall have occurred.

NeuroBo must reimburse Gemphire for all reasonable fees and expenses incurred by Gemphire in connection with the Merger Agreement and the transactions contemplated by such agreement, with these fees and expenses capped at $500,000, if (i) the Merger Agreement is terminated by Gemphire because NeuroBo has breached any of its representations, warranties, covenants or agreements contained in the Merger Agreement or if any representation or warranty of NeuroBo has become inaccurate, in either case such that the conditions to the Closing of the merger would not be satisfied as of the time of such breach or inaccuracy, subject to a 15-day cure period; (ii) the Merger Agreement is terminated by Gemphire because all the conditions precedent to the obligations of Gemphire and NeuroBo to complete the merger have been satisfied (other than those conditions that by their nature are to be satisfied by actions taken at the Closing), other than meeting the requirements of the Pre-Closing Financing; or (iii) Gemphire fails to consummate the merger solely as a result of a Company Material Adverse Effect.

**Amendment**

The Merger Agreement may be amended by the parties at any time if such amendment is in writing, is approved by the boards of directors of each party to the Merger Agreement and is signed by each party to the Merger Agreement, except that after the Merger Agreement has been adopted and approved by the stockholders of Gemphire or NeuroBo, no amendment which by law requires further approval by the stockholders of Gemphire or NeuroBo, as the case may be, shall be made without such further approval.

## AGREEMENTS RELATED TO THE MERGER

### Contingent Value Rights Agreement

At the Effective Time, Gemphire, Grand Rapids Holders' Representative, LLC, as representative of Gemphire Stockholders prior to the Effective Time, and Computershare Inc., as the rights agent, will enter into a CVR Agreement.

Under the CVR Agreement, the combined organization has agreed to commit $1 million to support the further development of gemcabene through the quarter ending March 31, 2020, the funding of which was conditioned on receipt by Gemphire of the $2.5 million upfront gross payment payable under the Beijing SL License Agreement.

Pursuant to the Merger Agreement and the CVR Agreement, for each share of Gemphire common stock held after giving effect to the Gemphire Reverse Stock Split, Gemphire Stockholders of record as of immediately prior to the Effective Time will receive one contingent value right ("CVR") entitling such holders to receive, in the aggregate, 80% of the Gross Consideration less other Permitted Deductions received during the 15-year period after the Closing of the merger (the "CVR Term") from the grant, sale or transfer of rights to gemcabene (other than a grant, sale or transfer of rights involving a sale or disposition of the post-merger combined company) that is entered into during the 10-year period after the Closing of the merger (a "Gemcabene Deal") or pursuant to the Beijing SL License Agreement.

"Gross Consideration" means, after the retention of an aggregate amount equal to $500,000 by Gemphire, an amount equal to 80% of: (a) all cash consideration paid by a third party to Gemphire or its affiliates during the CVR Term in connection with any Gemcabene Deal or pursuant to the Beijing SL License Agreement (including royalty payments, but not including, the $2.5 million upfront payment payable under the Beijing SL License Agreement), plus (b) with respect to any non-cash consideration received by Gemphire from a third party during the CVR Term in connection with any Gemcabene Deal or the Beijing SL License Agreement, all amounts received by Gemphire for such non-cash consideration at the time such non-cash consideration is monetized by Gemphire. If a Gemcabene Deal or the Beijing SL License Agreement also involves assets that are not related to gemcabene but are related to other proprietary technology, products or assets of Gemphire, then the total consideration will be allocated between all such technology, products and assets, and only that consideration allocated to gemcabene will be included in Gross Consideration.

"Permitted Deductions" means the sum of: (i) any and all fees, milestone payments and royalties paid by Gemphire to Pfizer pursuant to the Pfizer License Agreement with respect to gemcabene that is subject to a Gemcabene Deal, plus (ii) all fees, milestones, royalties and other payments paid by Gemphire to any other third party licensor in consideration for a license to such third party's patents that would be infringed, absent such license, by gemcabene, plus (iii) all patent prosecution and maintenance costs, and drug product storage costs, incurred by Gemphire with respect to gemcabene, plus (iv) all out-of-pocket transaction costs incurred by Gemphire to third parties for the negotiation, entry into and closing of a Gemcabene Deal, or any transaction described under (i) - (iii) in this paragraph, including any broker fees, finder's fees, advisory fees, accountant or attorney's fees, plus (v) all fees and costs (including any amounts paid for indemnification) payable by Gemphire to the rights agent pursuant to the CVR Agreement, plus (vi) all fees and costs incurred by Gemphire after the Closing in connection with the Beijing SL License Agreement, including but not limited to those relating to insurance costs, plus (vii) all fees and costs incurred by Gemphire to settle any claims relating to tail provisions under investment banking engagement letters entered into by Gemphire prior to the Closing, in each case to the extent such costs have been incurred during the CVR Term and are not reimbursed or paid to Gemphire by a third party.

The sole right of the holders of the CVRs is to receive cash from Gemphire, if any, through the rights agent in accordance with the CVR Agreement. The CVRs are not transferable, except in certain limited circumstances, will not be certificated or evidenced by any instrument and will not be registered with the SEC or listed for trading on any exchange. The CVRs will not have any voting or dividend rights, will not represent any equity or ownership interest in Gemphire or its subsidiaries, and interest will not accrue on any amounts payable on the CVRs. The CVR Agreement will be effective prior to the Closing of the merger and will continue in effect until the later of the end of the CVR Term and the payment of all amounts payable thereunder, unless and until earlier terminated upon termination of the Merger Agreement.

***Material U.S. Federal Income Tax Consequences of the Receipt of CVRs***

This discussion under "*Agreements Related to the Merger—Contingent Value Rights Agreement—Material U.S. Federal Income Tax Consequences of the Receipt of CVRs*" pertaining to the U.S. federal income tax consequences of the receipt of CVRs by Gemphire U.S. Holders, insofar as such discussion constitutes statements of U.S. federal income tax law or legal conclusions, in each case, subject to the assumptions, limitations and conditions set forth in this proxy statement/prospectus/information statement, constitutes the opinion of Honigman LLP as to the material U.S. federal income tax consequences of the receipt of the CVRs by Gemphire U.S. Holders. Due to the legal and factual uncertainties regarding the U.S. federal income tax treatment of CVRs, Gemphire U.S. Holders are urged to consult their tax advisors regarding the tax consequences to them of the receipt of CVRs and the timing and characterization of income, gain or loss resulting from receipt of payments (if any) pursuant to the CVRs.

The following discussion is a summary of the material U.S. federal income tax consequences of the receipt of CVRs to Gemphire U.S. Holders (as defined below) who receive CVRs with respect to Gemphire common stock, but this discussion does not purport to be a complete analysis of all potential tax consequences that may be relevant to a Gemphire U.S. Holder. The effects of other U.S. federal tax laws, such as estate and gift tax laws, and any applicable state, local or non-U.S. tax laws are not discussed. This discussion is based on the Code, Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the IRS, in each case in effect as of the date hereof. These authorities may change or be subject to differing interpretations. Any such change or differing interpretation may be applied retroactively in a manner that could adversely affect a Gemphire U.S. Holder. Gemphire has not sought and does not intend to seek any rulings from the IRS regarding the matters discussed below. There can be no assurance the IRS or a court will not take a position contrary to that discussed below regarding the tax consequences of the receipt of CVRs.

This discussion is limited to Gemphire U.S. Holders that hold Gemphire common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all U.S. federal income tax consequences relevant to a Gemphire U.S. Holder's particular circumstances, including the impact of the alternative minimum tax or the Medicare contribution tax on net investment income. In addition, it does not address consequences relevant to Gemphire U.S. Holders subject to special rules, including, without limitation:

- U.S. expatriates and former citizens or long-term residents of the United States;
- Gemphire U.S. Holders whose functional currency is not the U.S. dollar;
- persons holding Gemphire common stock as part of a hedge, straddle or other risk reduction strategy or as part of a conversion transaction or other integrated investment;
- banks, insurance companies, and other financial institutions;
- real estate investment trusts or regulated investment companies;

- brokers, dealers or traders in securities;
- "controlled foreign corporations," "passive foreign investment companies," and corporations that accumulate earnings to avoid U.S. federal income tax;
- S corporations, partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes (and investors therein);
- persons for whom Gemphire common stock constitutes "qualified small business stock" within the meaning of Section 1202 of the Code or "Section 1244 stock" for purposes of Section 1244 of the Code;
- tax-exempt organizations or governmental organizations;
- persons subject to special tax accounting rules as a result of any item of gross income with respect to Gemphire common stock being taken into account in an "applicable financial statement" (as defined in the Code);
- persons deemed to sell Gemphire common stock under the constructive sale provisions of the Code;
- persons who hold or received Gemphire common stock pursuant to the exercise of any employee stock option or otherwise as compensation; and
- tax-qualified retirement plans.

If an entity treated as a partnership for U.S. federal income tax purposes holds Gemphire common stock, the tax treatment of a partner in the partnership will depend on the status of the partner, the activities of the partnership and certain determinations made at the partner level. Accordingly, partnerships holding Gemphire common stock and the partners in such partnerships should consult their tax advisors regarding the U.S. federal income tax consequences to them.

**THIS DISCUSSION IS FOR INFORMATION PURPOSES ONLY AND IS NOT TAX ADVICE. HOLDERS SHOULD CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES OF THE RECEIPT OF CVRs ARISING UNDER THE U.S. FEDERAL ESTATE OR GIFT TAX LAWS OR UNDER THE LAWS OF ANY STATE, LOCAL OR NON-U.S. TAXING JURISDICTION OR UNDER ANY APPLICABLE INCOME TAX TREATY.**

For purposes of this discussion, a Gemphire U.S. Holder is a beneficial owner of Gemphire common stock that, for U.S. federal income tax purposes, is or is treated as:

- an individual who is a citizen or resident of the United States;
- a corporation created or organized under the laws of the United States, any state thereof, or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust that (i) is subject to the primary supervision of a U.S. court and the control of one or more "United States persons" (within the meaning of Section 7701(a)(30) of the Code) over all of its substantial decisions or (ii) has a valid election in effect to be treated as a United States person for U.S. federal income tax purposes.

*Receipt of CVRs by Gemphire U.S. Holders*

This discussion assumes that the distribution of CVRs to Gemphire U.S. Holders will be treated for U.S. federal income tax purposes as a transaction that is separate and distinct from the Gemphire Reverse Stock Split. If, contrary to that assumption, the distribution of CVRs to Gemphire U.S.

Holders were integrated for tax purposes with the Gemphire Reverse Stock Split, this could affect the calculation of the extent to which the distribution constitutes a taxable dividend or capital gain.

There is substantial uncertainty as to the tax treatment of the CVRs. Specifically, there is no authority directly addressing whether contingent value rights with characteristics similar to the CVRs should be treated as a distribution of property with respect to the corporation's stock, a distribution of equity, a "debt instrument" or an "open transaction" for U.S. federal income tax purposes. Under applicable U.S. tax principles such questions are inherently factual in nature. As a result, it is not possible to express a definitive conclusion as to the U.S. federal income tax treatment of receipt of the CVRs or receipt of payments (if any) pursuant to the CVRs. Based on the specific characteristics of the CVRs, Gemphire intends to treat the issuance of the CVRs as a distribution of property with respect to its stock. No assurance can be given that the IRS would not assert, or that a court would not sustain, a position contrary to any description of the intended tax consequences summarized below. No advance ruling has been or will be sought from the IRS regarding any matter discussed in this proxy statement/prospectus/information statement.

In the opinion of Honigman LLP, Gemphire's legal counsel, based on the facts, representations and assumptions set forth herein, the issuance of the CVRs to Gemphire U.S. Holders under the terms expressed in the form of the CVR Agreement included in *Annex A* to this proxy statement/prospectus/information statement is more likely than not to be treated as a distribution of property with respect to Gemphire common stock, because the CVRs will be issued to all holders of Gemphire common stock prior to completion of the merger, and not as part of the consideration for the merger paid to holders of NeuroBo common stock. Each Gemphire U.S. Holder will be treated as receiving a distribution in an amount equal to the fair market value of the CVRs issued to such Gemphire U.S. Holder on the date of the issuance. This distribution generally should be treated first as a taxable dividend to the extent of the Gemphire U.S. Holder's pro rata share of Gemphire's current or accumulated earnings and profits (as determined for U.S. federal income tax purposes), then as a non-taxable return of capital to the extent of the Gemphire U.S. Holder's basis in its Gemphire common stock, and finally as capital gain from the sale or exchange of Gemphire common stock with respect to any remaining value. Gemphire currently has negative accumulated earnings and profits and expects no or a small amount of current earnings and profits for the relevant taxable year. Thus, Gemphire expects most or all of this distribution to be treated as other than a dividend for U.S. federal income tax purposes. Gemphire U.S. Holders will receive a Form 1099-DIV notifying them of the portion of the CVR value that is treated as a dividend for U.S. federal income tax purposes. A Gemphire U.S. Holder's initial tax basis in such holder's CVRs should equal the fair market value of such CVRs on the date of their issuance. The holding period of such CVRs should begin on the day after the date of issuance.

As a result of the above treatment, future payments received by a Gemphire U.S. Holder on a CVR would likely be treated as a non-taxable return of such Gemphire U.S. Holder's adjusted tax basis in the CVR to the extent thereof, and payments in excess of such amount would likely be treated as ordinary income.

However, the treatment of such future payments is uncertain and alternative treatments are possible, although not expected. One such possible treatment is that the CVRs could be treated as one or more "debt instruments." If that were to be the case, then payments received with respect to the CVRs generally would likely be treated as payments in retirement of a "debt instrument," except to the extent interest is imputed under the Code. If those rules were to apply, interest generally should be imputed under complex rules. In such a case, a Gemphire U.S. Holder would be required to include any such interest in income on an annual basis, whether or not currently paid.

It is possible, although Gemphire believes unlikely, that the issuance of the CVRs could be treated as a distribution of equity for U.S. federal income tax purposes, in which case Gemphire U.S. Holders should not recognize gain or loss as a result of the issuance of the CVRs. Depending on the fair

market value of the CVRs on the date of their issuance, each Gemphire U.S. Holder's tax basis in such holder's Gemphire common stock would be allocated between such holder's Gemphire common stock and such holder's CVRs. The holding period of such CVRs should include the Gemphire U.S. Holder's holding period of such holder's Gemphire common stock. Future payments on a CVR received by a Gemphire U.S. Holder would likely be treated as dividends to the extent of the Gemphire U.S. Holder's pro rata share of Gemphire's current or accumulated earnings and profits (as determined for U.S. federal income tax purposes), then as a non-taxable return of capital to the extent of the Gemphire U.S. Holder's basis in the CVR, and finally as capital gain from the sale or exchange of the CVR with respect to any remaining value. As discussed above, Gemphire does not intend to report the issuance of the CVRs as a distribution of equity and any Gemphire U.S. Holder reporting the CVR issuance as a distribution of equity likely faces an increased chance of being audited by the IRS with respect to such reporting.

It is possible, although again Gemphire believes unlikely, that the issuance of the CVRs could be treated as subject to the "open transaction" doctrine if the value of the CVRs on the Closing date cannot be "reasonably ascertained." If the receipt of CVRs were treated as an "open transaction" for U.S. federal income tax purposes, each Gemphire U.S. Holder should not immediately take the CVRs into account in determining whether such holder must recognize gain, if any, on the receipt of the CVRs and such holder would take no tax basis in the CVRs. Rather, the Gemphire U.S. Holder's U.S. federal income tax consequences would be determined in line with the discussion above based on whether the CVRs are treated as a distribution of property or of equity at the time the payments with respect to the CVRs are received or deemed received in accordance with the Gemphire U.S. Holder's regular method of accounting. As discussed above, Gemphire does not intend to report the issuance of the CVRs as an open transaction and any Gemphire U.S. Holder reporting the CVR issuance as an open transaction likely faces an increased chance of being audited by the IRS with respect to such reporting.

The CVRs should generally be treated as capital assets for U.S. federal income tax purposes once issued.

*Alternative Treatment of the Receipt of CVRs and the Gemphire Reverse Stock Split as a Single Recapitalization*

Notwithstanding Gemphire's position that the receipt of CVRs and the Gemphire Reverse Stock Split are appropriately treated as separate transactions, it is possible that the IRS or a court could determine that the receipt of the CVRs and the Gemphire Reverse Stock Split constitute a single "recapitalization" for U.S. federal income tax purposes. In such case, the tax consequences of the receipt of CVRs and the Gemphire Reverse Stock Split would differ from those described above and would depend in part on many of the same considerations described above, including whether the CVRs should be treated as property, equity or debt instruments or should be subject to the "open transaction" doctrine. In general, if the CVRs are treated as property and are not subject to the "open transaction" doctrine, then a Gemphire U.S. Holder should recognize gain (but not loss) equal to the lesser of (i) the fair market value of the CVRs received, and (ii) the excess (if any) of (A) the sum of (1) the fair market value of the CVRs received and (2) the fair market value of the Gemphire shares received in the Gemphire Reverse Stock Split (treating fractional shares as received for this purpose), over (B) the Gemphire U.S. Holder's adjusted tax basis in the Gemphire common stock surrendered in the Gemphire Reverse Stock Split.

**PLEASE CONSULT YOUR TAX ADVISOR WITH RESPECT TO THE PROPER CHARACTERIZATION OF THE RECEIPT OF THE CVRs.**

**Voting Agreements and Written Consents**

In order to induce Gemphire to enter into the Merger Agreement, certain NeuroBo Stockholders are parties to a voting agreement with NeuroBo and Gemphire pursuant to which, among other things, each such NeuroBo Stockholder has agreed, solely in his, her or its capacity as a NeuroBo Stockholder, to vote all of his, her or its shares of NeuroBo capital stock in favor of (i) the adoption and approval of the Merger Agreement and the transactions contemplated thereby, (ii) acknowledgement that the approval given for the Merger Agreement is irrevocable and that the stockholder is aware of such stockholder's appraisal rights under Section 262 of the DGCL, (iii) acknowledgement that the stockholder is not entitled to appraisal rights by voting in favor of the transaction and waiving appraisal rights under the DGCL, (iv) the conversion of each share of NeuroBo preferred stock and each NeuroBo convertible note into NeuroBo common stock, and (v) waiving any notice that may have been or may be required relating to the merger or any other transactions contemplated thereby. Additionally, each such NeuroBo Stockholder has agreed, solely in its capacity as a NeuroBo Stockholder, to vote against any competing acquisition proposal and any action, proposal or transaction that would reasonably be expected to result in a material breach of the voting agreement. These NeuroBo Stockholders have also granted an irrevocable proxy to NeuroBo and its designee to vote their respective NeuroBo capital stock in accordance with the voting agreements.

As of September 30, 2019, the NeuroBo directors, officers and holders of 5% or more of NeuroBo capital stock who are party to a voting agreement (including any affiliated entities) owned an aggregate of 4,520,000 shares of NeuroBo common stock and 5,900,000 shares of NeuroBo preferred stock, representing approximately 90% of the outstanding shares of NeuroBo capital stock on an as converted to common stock basis.

Following the effectiveness of the registration statement of which this proxy statement/prospectus/information statement is a part and pursuant to the Merger Agreement, these stockholders will execute a written consent providing for such adoption and approval.

Under these voting agreements, subject to certain exceptions, such NeuroBo Stockholders have also agreed not to sell or transfer shares of NeuroBo capital stock and securities held by them, or any voting rights with respect thereto, until the Effective Time. To the extent that any such sale or transfer is permitted pursuant to the exceptions included in the voting agreement, each person to which any shares of NeuroBo capital stock or securities are so sold or transferred shall be bound by the terms and provisions of the voting agreement.

In addition, in order to induce NeuroBo to enter into the Merger Agreement, certain of Gemphire Stockholders have entered into voting agreements with Gemphire and NeuroBo pursuant to which, among other things, each such Gemphire Stockholder has agreed, solely in his, her or its capacity as a Gemphire Stockholder, to vote all of his, her or its shares of Gemphire common stock in favor of Proposal Nos. 1, 2, 3, and 4. Additionally, each such Gemphire Stockholder has agreed, solely in his, her or its capacity as a stockholder of Gemphire, to vote against any competing acquisition proposal and any action, proposal or transaction that would reasonably be expected to result in a material breach of the voting agreement. These Gemphire Stockholders have also granted Gemphire and its designee an irrevocable proxy to vote their respective shares in accordance with the voting agreements. Gemphire Stockholders may vote their shares of Gemphire common stock on all other matters not referred to in such proxy.

The Gemphire Stockholders who are parties to these voting agreements are:

- Kenneth Kousky
- Pedro Lichtinger
- Andrew Sassine

- Seth Reno
- Charles L. Bisgaier
- Steven Gullans
- David Lowenschuss
- Excel Ventures II GP, LLC

As of September 30, 2019, the Gemphire Stockholders who are party to a voting agreement owned an aggregate of 3,838,951 shares of Gemphire common stock representing approximately 26% of the outstanding shares of Gemphire common stock.

Under these voting agreements, subject to certain exceptions, such Gemphire Stockholders also have agreed not to sell or transfer their shares of Gemphire common stock or any interest therein until the Effective Time. To the extent that any such sale or transfer is permitted pursuant to the exceptions included in the voting agreements, each person to whom any shares of Gemphire common stock or securities are so sold or transferred shall be bound by the terms and provisions of the voting agreement, subject to certain further exceptions.

**Lock Up Agreements**

As a condition to the Closing of the merger, certain stockholders of each of Gemphire and NeuroBo and their affiliates, have entered into lock-up agreements, pursuant to which such parties have agreed not to, except in limited circumstances, offer, pledge, sell, contract to sell, transfer or dispose of, directly or indirectly, engage in swap or similar transactions with respect to, or make any demand for or exercise any right with respect to, any shares of Gemphire common stock or any security convertible into or exercisable or exchangeable for Gemphire common stock, including, as applicable, shares received in the merger and issuable upon exercise of certain warrants and options, during the period commencing at the Effective Time and continuing until the date that is 180 days from the Effective Time.

Each of the directors and officers of Gemphire is a party to a lock-up agreement. As of September 30, 2019, Gemphire Stockholders who have executed lock-up agreements beneficially owned in the aggregate approximately 14% of the outstanding Gemphire common stock.

Certain of NeuroBo Stockholders are also party to a NeuroBo lock-up agreement. NeuroBo Stockholders who have executed lock-up agreements, as of September 30, 2019, beneficially owned in the aggregate approximately 90% of the outstanding shares of NeuroBo capital stock on an as converted to common stock basis.

Gemphire has filed an initial listing application with Nasdaq pursuant to the Nasdaq Stock Market LLC "business combination" rules. If such application is accepted, Gemphire anticipates that Gemphire common stock will be listed on Nasdaq following the closing of the merger under the trading symbol "NRBO." In order to meet the requirements for listing on Nasdaq, the post-merger combined company will be required to satisfy Nasdaq's initial listing requirements, including the financial and liquidity requirements for the applicable Nasdaq market tier upon which the post-merger combined company's shares will trade following the merger. Due to recent changes in these listing requirements, certain Nasdaq market tiers and standards require companies seeking to list to demonstrate a minimum "Market Value of Unrestricted Publicly Held Shares" as of the effective time of the closing of a business combination. Per current Nasdaq rules and requirements, the "Market Value of Unrestricted Publicly Held Shares" may not include the value of any securities subject to resale restrictions, including the types of restrictions set forth in the Gemphire and Neurobo lock-up agreements.

Assuming a closing bid price of the Gemphire common stock as reported by Nasdaq of $0.36 per share and assuming the post-merger combined company sought to qualify for listing on the Nasdaq Capital Market under Nasdaq's "Equity Standard" or "Market Value of Listed Securities Standard" as applicable to the Nasdaq Capital Market, Gemphire and NeuroBo expect no stockholders would be released from the restrictions under the Gemphire and NeuroBo lock-up agreements in order for the post-merger combined company to meet applicable listing requirements.

**NeuroBo Preferred Stock Conversion**

Article Fourth of NeuroBo's fourth amended and restated certificate of incorporation designates 4,200,000 shares of the authorized and unissued shares of NeuroBo preferred stock as Series A preferred stock and 7,800,000 shares as Series B preferred stock. As of September 30, 2019, there were 4,200,000 shares of NeuroBo's Series A preferred stock outstanding and 3,030,000 shares of NeuroBo's Series B preferred stock outstanding. Immediately prior to the Effective Time and pursuant to the Merger Agreement, each share of NeuroBo preferred stock then outstanding will be converted into one share of NeuroBo common stock in accordance with the applicable provisions of NeuroBo's fourth amended and restated certificate of incorporation.

**NeuroBo Convertible Note Conversion**

As of September 30, 2019, 1,095,616 shares of NeuroBo common stock were issuable upon the full conversion of a promissory note held by JK BioPharma Solutions, Inc. and 273,904 shares of NeuroBo common stock were issuable upon the full conversion of a promissory note held by Roy Freeman, assuming that such conversions were to occur on December 31, 2019. On October 23, 2019, the holders of the promissory notes entered into agreements with NeuroBo providing that the promissory notes will be converted into NeuroBo common stock, effective immediately prior to the closing of the merger, at a conversion price equal to $0.40 per share (which reflects adjustment for the NeuroBo Stock Split). The actual number of shares of NeuroBo common stock issuable upon the Convertible Note Conversion will depend on the date of the Closing of the merger and the accrued interest through such date.

**NeuroBo Stock Split**

On August 13, 2019, NeuroBo effected a 10,000-for-1 split of NeuroBo common stock and NeuroBo preferred stock (the "NeuroBo Stock Split") by means of an amendment to NeuroBo's fourth amended and restated certificate of incorporation. The NeuroBo Board determined that it was in the best interests of NeuroBo and the NeuroBo Stockholders to amend its fourth amended and restated certificate of incorporation to (i) increase the number of authorized shares of NeuroBo common stock and NeuroBo preferred stock to 50,000,000 and 12,000,000, respectively; (ii) increase the number of shares of NeuroBo preferred stock designated as Series A preferred stock and Series B preferred stock to 4,200,000 and 7,800,000, respectively; (iii) effect the NeuroBo Stock Split by reclassifying each outstanding share of the NeuroBo common stock and NeuroBo preferred stock as 10,000 shares of NeuroBo common stock or NeuroBo preferred stock, respectively; (iv) make conforming changes to other provisions of the fourth amended and restated certificate of incorporation to reflect the NeuroBo Stock Split; and (v) clarify that a mandatory conversion of the NeuroBo preferred stock will occur immediately prior to the Closing of the merger.

## GEMPHIRE DIRECTORS, OFFICERS AND CORPORATE GOVERNANCE

The Gemphire Board is currently divided into three classes with members of each class serving staggered three-year terms as follows: Mr. Lichtinger and Mr. Sassine are Class III directors, whose terms expire at the Gemphire annual meeting and who have been nominated for reelection to the Gemphire Board as Class III directors; Dr. Gullans is a Class II director, whose term will expire at the 2021 annual meeting; and Dr. Bisgaier and Mr. Kousky are Class I directors, whose terms will expire at the 2020 annual meeting. If the merger is completed, the Gemphire Board will be reconstituted as provided in the Merger Agreement.

The following table provides information as to each person who is, as of September 30, 2019, a director and/or executive officer of Gemphire:

| NAME | AGE | POSITION(S) |
|---|---|---|
| Dr. Steven Gullans | 66 | President, Chief Executive Officer and Director |
| Dr. Charles L. Bisgaier | 65 | Chief Scientific Officer and Chairman of the Board |
| Seth Reno | 53 | Chief Commercial Officer |
| Pedro Lichtinger | 65 | Director |
| Andrew Sassine | 55 | Director |
| Kenneth Kousky | 65 | Director |

**Business Experience and Background of Directors and Executive Officers of Gemphire**

***Dr. Steven Gullans*** has been Gemphire's President and Chief Executive Officer since May 2018 and has served as a member of the Gemphire Board since April 2016. Prior to his appointment as CEO, he served as Gemphire's Interim President and Chief Executive Officer from May 2017 until May 2018. He previously served as Managing Director at Excel Venture Management, LLC (Excel), a Boston-based venture capital firm which he co-founded and where he was employed from February 2008 through May 2018. At Excel, he focused on investing in life science technology companies with a particular interest in disruptive platforms that can impact multiple industries. Prior to Excel, Dr. Gullans co-founded RxGen, Inc., a pharmaceutical services company where he served as chief executive officer from January 2004 to February 2008. Dr. Gullans is currently a director at Orionis Biosciences, a drug development company. He was previously a board member of Activate Networks, Inc. which was acquired by Decision Resource Group, BioTrove, Inc. which was acquired by Life Technologies Corporation, Biocius Life Sciences, Inc. which was acquired by Agilent Technologies Inc., Cleveland HeartLab, Inc., which was acquired by Quest Diagnostics, N-of-One, Inc. which was acquired by Qiagen, Inc., nanoMR Inc. which was acquired by DNA Electronics Ltd, Tetraphase Pharmaceuticals, Inc. which went public in 2013, and Molecular Templates, Inc. which was merged into a public entity in 2017. Dr. Gullans was a faculty member at Harvard Medical School and Brigham and Women's Hospital for almost 20 years. Dr. Gullans holds a B.S. from Union College and a Ph.D. from Duke University. The Gemphire Board believes Dr. Gullans should serve as a director based on his extensive experience in the life sciences industry and his board and CEO experience.

***Dr. Charles Bisgaier***, one of Gemphire's co-founders, has served as Gemphire's Chief Scientific Officer and Chairman of the Gemphire Board since November 2014. He also currently serves as an Adjunct Associate Professor of Pharmacology at the University of Michigan. Prior to Gemphire's founding, he served from September 2008 to November 2014 as the Chief Executive Manager for Gemphire's predecessor, Michigan Life Therapeutics, LLC. In addition, he co-founded Michigan Life Ventures, LLC, a venture capital firm investing primarily in Michigan-based life sciences companies, where since 2008 he has served as the Chief Executive Manager. He also served as the Interim President and Chief Executive Officer of ProNAi Therapeutics, Inc., currently known as Sierra Oncology, a clinical-stage oncology company, from September 2010 to April 2012, and as a member of its board of directors from 2009 to March 2014. In 1998, Dr. Bisgaier co-founded the original Esperion,

which was acquired by Pfizer in 2003. After the acquisition, he served as the Senior Director of Pharmacology for the Esperion Division of Pfizer Global Research and Development from 2004 to 2006. From 2006 to 2008, Dr. Bisgaier also served as a director, board member and president of Pipex Pharmaceuticals, Inc., currently known as Synthetic Biologics, Inc., a specialty pharmaceutical company. From 1990 to 1998, Dr. Bisgaier was an Associate Research Fellow in the Department of Cardiovascular Diseases in the Parke-Davis division of Warner-Lambert Co. Currently he is a board member at Hygieia, Inc., a privately held health service company, at BioSavita Inc., a privately held life sciences company, and at Diapin Therapeutics LLC, a privately held life sciences company and an advisor to Imagine Pharma, LLC, a privately held healthcare pharmaceutical company. He received a B.A. in biology from the State University of New York at Oneonta and an M.S. and Ph.D. in biochemistry from George Washington University. After receiving his Ph.D., he studied lipoprotein metabolism within the Specialized Center of Research for atherosclerosis at Columbia University College of Physicians and Surgeons. The Gemphire Board believes Dr. Bisgaier should serve as a director based on his depth of experience in founding and developing biopharmaceutical companies as well as his knowledge of Gemphire's product candidate gemcabene.

***Seth Reno*** has served as Gemphire's Chief Commercial Officer since August 2015. Prior to joining Gemphire, he served in several commercial roles including Head of Commercial Operations for Medimmune, LLC, a biologics company, from June 2010 to April 2015. From April 2001 to June 2010, Mr. Reno worked at AstraZeneca, a public biopharmaceutical company, in a number of roles, including in the sales, commercial operations, managed markets and brand team spaces. Prior to joining AstraZeneca in 2001, Mr. Reno spent 11 years at Wyeth Pharmaceuticals, Inc., a pharmaceutical company, in commercial operations and sales account management. Mr. Reno holds a B.S. in human resources from the University of Delaware and an M.B.A. from Strayer University.

***Pedro Lichtinger*** has served as a member of the Gemphire Board since December 2015. Mr. Lichtinger is currently Chairman, Chief Executive Officer, and Director of ChemioCare Inc., a private biotechnology company focused on the CIMV (Chemotherapy Induced Nausea and Emesis) therapeutic area. He was previously the President, Chief Executive Officer, and Director of Asterias Biotherapeutics, a publicly traded company with a focus on neurology and oncology from June 2014 to February 2016. Mr. Lichtinger served as President, Chief Executive Officer, and a director of Optimer Pharmaceuticals, Inc., from May 2010 to February 2013. Mr. Lichtinger previously served as an executive of Pfizer, Inc. from 1995 to 2009, including as President of Pfizer's Global Primary Care Unit from 2008 to 2009, Area President, Europe from 2006 to 2008, President, Global Animal Health from 1999 to 2006, and Regional President Europe Animal Health from 1995 to 1999. Before joining Pfizer, Mr. Lichtinger was an executive of Smith Kline Beecham Plc, last serving as Senior Vice-President Europe Animal Health from 1987 to 1995. Mr. Lichtinger serves as a director of Sanfer de Mexico, a leading Mexican pharmaceutical company and is on the advisory board of Zero Gravity Solutions, Inc., an agricultural company. Mr. Lichtinger previously served as a director of BioTime, Inc. Mr. Lichtinger holds an MBA degree from the Wharton School of Business and an engineering degree from the National University of Mexico. The Gemphire Board believes Mr. Lichtinger should serve as director based on his extensive pharmaceutical industry and public company leadership experience.

***Andrew Sassine*** has served as a member of the Gemphire Board since May 2015. Mr. Sassine has been the Chief Financial Officer of Arcturus Therapeutics Holdings, Inc. (ARCT: Nasdaq) since January 1, 2019 and has served as a member of the Arcturus Board from May 2018 through June 2019. Mr. Sassine served in various positions at Fidelity Investments from 1999 to 2012, including as a Portfolio Manager for various funds from 2005 to December 2011. Mr. Sassine has also served on several boards of life science companies. Mr. Sassine currently serves on the board of directors of iCAD, Inc., a public cancer detection and radiation therapy solutions company and previously served on the boards of directors of FluoroPharma Medical, Inc., a public biopharmaceutical company, Acorn Energy, Inc., a public holding company focused on technology solutions for energy infrastructure asset

management and CNS Response, Inc., a public psychiatric clinical decision support company. Mr. Sassine also serves on the board of directors Comhear Inc., a private digital audio software and device company, where he is also the chairman of the board of directors. Mr. Sassine was a member of the Henry B. Tippie College of Business, University of Iowa Board of Advisors from 2009 through 2018 and served on the board of trustees at the Clarke Schools for Hearing and Speech from 2009 through 2014. Mr. Sassine holds a B.A. from the University of Iowa and an M.B.A. from the Wharton School at the University of Pennsylvania. The Gemphire Board believes Mr. Sassine should serve as a director based on his extensive experience in the public markets as well as his financial expertise.

***Kenneth Kousky*** has served as a member of the Gemphire Board since March 2015. Mr. Kousky has also served as the Chief Executive Officer of the Mid-Michigan Innovation Center, a privately funded, non-profit business incubator, since 2010. He has also served as the President and Chief Executive Officer of IP3, Inc., an information security consulting firm, since 2002. Also, Mr. Kousky is a founding member and has served as Executive Director of the Blue Water Angels Investment Network, a Michigan-based funding network that assists in private equity investments in early-stage tech startups, since 2008. In 1988, Mr. Kousky founded an IT services company, Wave Technologies International Inc., which he led through an initial public offering in 1994. In 1989, he established Washington University's graduate program in Telecommunication Management, and he has lectured at Saginaw Valley State University, Washington University and at the Wharton School of Business at the University of Pennsylvania. Mr. Kousky is a member of several corporate boards, including Michigan Sugar Company, RetroSense Therapeutics LLC and Foodjunky LLC. Mr. Kousky holds a B.A. in economics and urban studies from Washington University, and an M.S. in economics from the University of Pennsylvania. The Gemphire Board believes Mr. Kousky should serve as a director based on his extensive financial and strategic business planning experience.

There are no familial relationships among any of Gemphire's directors and executive officers.

**Gemphire Governance Matters**

Gemphire is committed to good corporate governance practices. These practices provide an important framework within which the Gemphire Board and management pursue Gemphire's strategic objectives for the benefit of Gemphire Stockholders.

***Corporate Governance Guidelines***

The Gemphire Board has adopted Corporate Governance Guidelines that set forth expectations for directors, director independence standards, Gemphire Board committee structure and functions and other policies for the governance of Gemphire. Gemphire's Corporate Governance Guidelines are available without charge on the investor relations section of its website at http://ir.gemphire.com under "Corporate Governance—Highlights".

***Code of Business Conduct and Ethics***

The Gemphire Board has adopted a code of business conduct and ethics that applies to all of its employees, officers and directors, including its chief executive officer, chief financial officer and other executive officers. Gemphire intends to disclose future amendments to certain provisions of its code of business conduct and ethics, or waivers of these provisions, on the Gemphire website. The full text of Gemphire's code of conduct is posted on the investor relations section of the Gemphire website at http://ir.gemphire.com under "Corporate Governance—Highlights".

***Gemphire Board Leadership Structure***

The Gemphire Board is currently chaired by its Chief Scientific Officer, Dr. Bisgaier, who has authority, among other things, to call and preside over meetings of the Gemphire Board, to set meeting

agendas and to determine materials to be distributed to the Gemphire Board and, accordingly, has substantial ability to shape the work of the Gemphire Board. Although the chairman of the Gemphire Board is an executive officer of Gemphire, the positions of chairman of the Gemphire Board and chief executive officer are presently separated. Separating these positions allows Gemphire's Chief Executive Officer, Dr. Gullans, to focus on Gemphire's day-to-day business, while allowing Dr. Bisgaier, Gemphire's co-founder who was also instrumental in the discovery and development of gemcabene, to lead the Gemphire Board.

***Role of the Gemphire Board in Risk Oversight***

One of the key functions of the Gemphire Board is informed oversight of its risk management process. The Gemphire Board does not have a standing risk management committee, but rather administers this oversight function directly through the Gemphire Board as a whole, as well as through various standing committees of the Gemphire Board that address risks inherent in their respective areas of oversight. This risk management process allows the Gemphire Board to play an active role in understanding and overseeing the management of risks that Gemphire faces and ensures that management has the framework and processes in place to effectively and adequately monitor and manage these risks. In particular, the Gemphire Board is responsible for monitoring and assessing strategic risk exposure, and Gemphire's audit committee has the responsibility to consider and discuss Gemphire's major financial risk exposures and the steps Gemphire management has taken to monitor and control these exposures, including guidelines and policies to govern the process by which risk assessment and management is undertaken. The audit committee also monitors compliance with legal and regulatory requirements. Gemphire's nominating and corporate governance committee monitors the effectiveness of Gemphire's corporate governance practices, including whether they are successful in preventing illegal or improper liability-creating conduct. The Gemphire Compensation Committee assesses and monitors whether any of Gemphire's compensation policies and programs has the potential to encourage excessive risk-taking.

***Gemphire Director Independence***

Gemphire common stock is listed on the Nasdaq Capital Market. Under the rules of Nasdaq, independent directors must comprise a majority of a listed company's board of directors. In addition, the rules of Nasdaq require that, subject to specified exceptions, each member of a listed company's audit, compensation and nominating and corporate governance committees be independent. Under the rules of Nasdaq, a director will only qualify as an "independent director" if, in the opinion of that company's board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. Additionally, compensation committee members must not have a relationship with the listed company that is material to the director's ability to be independent from management in connection with the duties of a compensation committee member.

Audit committee members must also satisfy the independence criteria set forth in Rule 10A-3 under the Exchange Act of 1934, as amended (the "Exchange Act"). In order to be considered independent for purposes of Rule 10A-3, a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of directors or any other board of directors committee: (i) accept, directly or indirectly, any consulting, advisory or other compensatory fee from the listed company or any of its subsidiaries; or (ii) be an affiliated person of the listed company or any of its subsidiaries.

The Gemphire Board has undertaken a review of the independence of each director and considered whether each director has a material relationship with Gemphire that could compromise his or her ability to exercise independent judgment in carrying out his or her responsibilities. As a result of this review, the Gemphire Board determined that persons who served as members of the Gemphire

Board during 2018 were, and all current members are, "independent directors" as defined under the applicable rules and regulations of the SEC and the listing requirements and rules of Nasdaq, except Dr. Gullans, Gemphire's President and Chief Executive Officer, and Dr. Bisgaier, Gemphire's Chairman and Chief Scientific Officer. In making this determination, the Gemphire Board considered the current and prior relationships that each non-employee director has with Gemphire and all other facts and circumstances that the Gemphire Board deemed relevant in determining each non-employee director's independence, including the participation by Gemphire's non-employee directors, or their affiliates, in certain Gemphire financing transactions and the beneficial ownership of Gemphire common stock by each non-employee director. See the sections entitled "*Related Party Transactions of Directors and Executive Officers of the Combined Organization*" and "*Principal Stockholders of Gemphire*."

***Committees of the Gemphire Board***

The Gemphire Board has established an audit committee, a compensation committee and a nominating and corporate governance committee, each of which has the composition and responsibilities described below. Members serve on these committees until their resignation or until otherwise determined by the Gemphire Board.

Copies of the charters for the audit, compensation and nominating and corporate governance committees are available without charge on the investor relations section of the Gemphire website at http://ir.gemphire.com under "Corporate Governance—Highlights".

***Audit Committee***

The Gemphire audit committee is comprised of Mr. Kousky, Mr. Lichtinger and Mr. Sassine, and Mr. Sassine is currently the chairman. Each member of the Gemphire audit committee meets the requirements for independence under the current Nasdaq and SEC rules and regulations and is financially literate. In addition, the Gemphire Board has determined that each of Messrs. Kousky, Lichtinger and Sassine is an "audit committee financial expert" as defined in Item 407(d)(5)(ii) of Regulation S-K promulgated under the Securities Act. This designation does not impose any duties, obligations or liabilities that are greater than are generally imposed on members of the audit committee and the Gemphire Board. The audit committee is directly responsible for, among other things:

- Gemphire's accounting and financial reporting processes, including Gemphire's financial statement audits and the integrity of Gemphire's financial statements;
- Gemphire's compliance with legal and regulatory requirements;
- the qualifications, independence and performance of Gemphire's independent auditors; and
- the preparation of the audit committee report to be included in the Gemphire annual proxy statement.

The responsibilities and activities of the audit committee are described further in its charter.

***Compensation Committee***

The Gemphire Compensation Committee is currently comprised of Mr. Kousky and Mr. Lichtinger, and Mr. Lichtinger is currently the chairman. Each member of the Gemphire Compensation Committee meets the requirements for independence under the current Nasdaq and SEC rules and regulations, is an outside director, as defined pursuant to Section 162(m) of the Code

and is a non-employee director as defined in Rule 16b-3 promulgated under the Exchange Act. The Gemphire Compensation Committee is responsible for, among other things:

- evaluating and recommending or approving executive officer and director compensation arrangements, plans, policies and programs;
- administering Gemphire's cash-based and equity-based compensation plans; and
- making recommendations to the Gemphire Board regarding any other Gemphire Board responsibilities relating to executive compensation.

The executive officer compensation program is substantially based on decisions made by the Gemphire Compensation Committee, in consultation with certain members of management, including Gemphire's Chief Executive Officer. Compensation determinations for the executive officers are made based on historical practice, corporate and individual performance and benchmarking compensation of similar positions at peer group companies.

In 2018, the Gemphire Compensation Committee retained an independent compensation consultant, Haigh & Company, to assist in structuring the compensation of Dr. Gullans upon his appointment as President and Chief Executive Officer in May 2018 and severance payments in connection with the September 2018 workforce reduction. No work performed by Haigh & Company during 2018 raised a conflict of interest.

The Gemphire Compensation Committee may form and delegate its authority to subcommittees as appropriate. The responsibilities and activities of the Gemphire Compensation Committee are described further in its charter.

***Nominating and Corporate Governance Committee***

The Gemphire nominating and corporate governance committee is comprised of Mr. Kousky and Mr. Sassine, and Mr. Kousky is currently the chairman. Each member of the Gemphire nominating and corporate governance committee meets the requirements for independence under the current Nasdaq and SEC rules and regulations. The nominating and corporate governance committee is responsible for, among other things:

- identifying, considering and recommending candidates for membership on the Gemphire Board;
- overseeing the process of evaluating the performance of the Gemphire Board; and
- advising the Gemphire Board on other corporate governance matters.

The responsibilities and activities of the nominating and corporate governance committee are described further in its charter.

***Compensation Committee Interlocks and Insider Participation***

In connection with the Closing of the merger, the combined company's board of directors is expected to select members of the Gemphire Compensation Committee. Each member of the Gemphire Compensation Committee is expected to be an "outside" director as that term is defined in Section 162(m) of the Code, a "non-employee" director within the meaning of Rule 16b-3 of the rules promulgated under the Exchange Act and independent within the meaning of the independent director guidelines of Nasdaq. None of the proposed combined company's executive officers serves as a member of the board of directors or compensation committee of any entity that has one or more executive officers who is proposed to serve on the combined company's board of directors or compensation committee following the completion of the merger.

***Gemphire Board and Committee Meetings and Attendance***

The Gemphire Board and its committees meet regularly throughout the year and also hold special meetings. During 2018, the Gemphire Board held 9 meetings; the audit committee held 4 meetings; the compensation committee held 5 meetings; and the nominating and corporate governance committee did not hold any meetings, in each case, including telephonic meetings. The Gemphire Board and its committees also act by written consent from time to time. During 2018, none of the directors attended fewer than 75% of the aggregate of the total number of meetings held by the Gemphire Board during his or her tenure and the total number of meetings held by all committees of the Gemphire Board on which such director served during his or her tenure. The independent members of the Gemphire Board also meet separately without management directors on a regular basis to discuss such matters as the independent directors consider appropriate.

***Gemphire Board Attendance at Annual Stockholders' Meeting***

Gemphire directors are requested to attend the Gemphire annual meeting, either in person or telephonically. Four of Gemphire's directors attended the 2018 Annual Meeting.

***Communication with Gemphire Directors***

Gemphire Stockholders and interested parties who wish to communicate with the Gemphire Board, non-management members of the Gemphire Board as a group, a committee of the Gemphire Board or a specific member of the Gemphire Board (including the Gemphire chairman) may do so by letters addressed to the attention of the Gemphire Secretary, Gemphire Therapeutics Inc., P.O. Box 130235, Ann Arbor, Michigan 48113.

All communications by letter addressed to the attention of the Gemphire Secretary will be reviewed by the Gemphire Secretary and provided to the members of the Gemphire Board unless such communications are unsolicited items, sales materials and other routine items and items unrelated to the duties and responsibilities of the Gemphire Board.

***Considerations in Evaluating Gemphire Director Nominees***

The nominating and corporate governance committee reviews and makes recommendations to the Gemphire Board, from time to time, regarding the appropriate skills and characteristics required of Gemphire Board members in the context of the current make-up of the Gemphire Board, the operations of Gemphire and the long-term interests of Gemphire Stockholders. See the section entitled *"Matters Being Submitted to a Vote of Gemphire Stockholders—Proposal No. 5: Election of Directors."* The committee does not have a specific diversity policy underlying its nomination process, although it seeks to ensure the Gemphire Board includes directors with diverse backgrounds, qualifications, skills and experience relevant to Gemphire's business.

In the case of an incumbent director whose term of office is set to expire, generally the nominating and corporate governance committee will re-nominate incumbent directors who continue to satisfy the committee's criteria for membership on the Gemphire Board, continue to make important contributions to the Gemphire Board and consent to continue their service on the Gemphire Board.

If a vacancy on the Gemphire Board occurs or the Gemphire Board increases in size, the nominating and corporate governance committee will actively seek individuals that satisfy the committee's criteria for membership on the Gemphire Board, and the committee may rely on multiple sources for identifying and evaluating potential nominees, including referrals from Gemphire's current directors and management. The committee did not employ a search firm or pay fees to other third parties in connection with identifying or evaluating Gemphire Board nominee candidates in 2018.

***Stockholder Recommendations for Nominations to the Gemphire Board***

The nominating and corporate governance committee will consider properly submitted stockholder recommendations for candidates for the Gemphire Board who meet the minimum qualifications as described above so long as such recommendations are sent on a timely basis and are otherwise in accordance with the Gemphire Certificate of Incorporation, Gemphire Bylaws and applicable law. A Gemphire Stockholder of record can nominate a candidate for election to the Gemphire Board by Gemphire Stockholder with the procedures in Article III, Section 5 of the Gemphire Bylaws and applicable law. Any eligible stockholder who wishes to submit a nomination should review the requirements in the Gemphire Bylaws on nominations by Gemphire Stockholders. Any nomination should be sent in writing to the Gemphire Secretary, Gemphire Therapeutics Inc., P.O. Box 130235, Ann Arbor, Michigan 48113.

See the section entitled *"Other Matters—Stockholder Proposals—Requirements for Stockholder Proposals and Director Nominations at the 2020 Annual Meeting"* for additional information. The committee will evaluate nominees recommended by Gemphire Stockholders against the same criteria that it uses to evaluate other nominees. Gemphire did not receive any nominations of directors by Gemphire Stockholder for the Gemphire annual meeting.

**Non-Employee Director Compensation**

Gemphire's non-employee directors receive a mix of cash and share-based compensation intended to encourage non-employee directors to continue to serve on the Gemphire Board, further align the interests of the directors and stockholders, and attract new non-employee directors with outstanding qualifications. Directors who are employees or officers of Gemphire do not receive any additional compensation for Board service.

Gemphire's non-employee director compensation policy became effective following the completion of its initial public offering in August 2016. Pursuant to this policy, each of Gemphire's non-employee directors receives an annual retainer of $50,000. Additionally, the Chairmen of Gemphire's audit, compensation and nominating and corporate governance committees receive an additional annual payment of $15,000, $7,500 and $5,000, respectively; and the members of each of Gemphire's committees receive an additional annual payment of $5,000.

On January 29, 2018, each non-employee director was granted an option to purchase 10,800 shares of Gemphire common stock, which options vested in a series of 12 equal monthly installments, subject to the director's continued service and would have vested in full upon a change in control (as defined in the Gemphire Therapeutics Inc. Amended and Restated Equity Incentive Plan, as amended (the "Gemphire 2015 Plan")).

The following table provides compensation information for the fiscal year ended December 31, 2018 for each non-employee member of the Gemphire Board.

| Name | Fees Earned or Paid in Cash ($) | Option Awards ($)(1) | Total ($) |
|---|---|---|---|
| P. Kent Hawryluk(2) | 62,500 | 65,629 | 128,129 |
| Kenneth Kousky | 55,000 | 65,629 | 120,629 |
| Pedro Lichtinger | 60,000 | 65,629 | 125,629 |
| Andrew Sassine | 70,000 | 65,629 | 135,629 |

(1) Stock option awards were granted under the Gemphire 2015 Plan. The amounts reported reflect the aggregate grant date fair value of each equity award granted to Gemphire's non-employee directors during the fiscal year ended December 31, 2018, as computed in accordance with ASC 718. Assumptions used in the calculation of these amounts are

included in Note 9 to the financial statements included in this proxy statement/prospectus/information statement. As required by SEC rules, the amounts shown exclude the impact of estimated forfeitures related to service-based vesting conditions.

(2) Mr. Hawryluk resigned from the Gemphire Board effective as of February 28, 2019.

As of December 31, 2018, each of the following non-employee directors had shares underlying outstanding stock options as follows: Mr. Hawryluk, 70,800; Mr. Kousky, 78,816; Mr. Lichtinger, 102,862; and Mr. Sassine, 102,862.

As named executive officers of Gemphire, compensation paid to Dr. Gullans and Dr. Bisgaier for the 2017 and 2018 fiscal years is fully reflected under the section entitled "*Gemphire Executive Compensation—Gemphire Summary Compensation Table for 2017 and 2018*".

## REPORT OF THE GEMPHIRE AUDIT COMMITTEE

The information contained in the following report of the Gemphire audit committee is not considered to be "soliciting material," "filed" or incorporated by reference in any past or future filing by Gemphire under the Exchange Act or the Securities Act unless and only to the extent that Gemphire specifically incorporates it by reference.

The Gemphire audit committee has reviewed and discussed with management and Ernst & Young Gemphire's audited financial statements as of and for the year ended December 31, 2018. The Gemphire audit committee has also discussed with Ernst & Young the matters required to be discussed by the applicable requirements of the Public Company Accounting Oversight Board and the Securities and Exchange Commission.

The Gemphire audit committee has received and reviewed the written disclosures and the letter from Ernst & Young required by applicable requirements of the Public Company Accounting Oversight Board regarding the independent accountant's communications with the audit committee concerning independence, and has discussed with Ernst & Young its independence.

Based on the review and discussions referred to above, the Gemphire audit committee recommended to the Gemphire Board that the audited financial statements as of and for the year ended December 31, 2018 be included in Gemphire's annual report on Form 10-K for the year ended December 31, 2018 for filing with the Securities and Exchange Commission.

**Audit Committee**
Andrew Sassine (Chair)
Pedro Lichtinger
Kenneth Kousky

## GEMPHIRE EXECUTIVE COMPENSATION

The following tables and accompanying narrative disclosure discuss the compensation awarded to, earned by, or paid to:

- Steven Gullans, Ph.D., Gemphire's President and Chief Executive Officer;
- Charles L. Bisgaier, Ph.D., Gemphire's Chief Scientific Officer and Chairman of the Gemphire Board;
- Lee Golden, Ph.D, Gemphire's former Chief Medical Officer;
- Jeffrey Mathiesen, Gemphire's former Chief Financial Officer; and
- Seth Reno, Gemphire's Chief Commercial Officer.

Gemphire refers to these five current or former executive officers as Gemphire's "named executive officers."

**Gemphire Summary Compensation Table for 2017 and 2018**

The following table presents summary information regarding the total compensation for services rendered in all capacities that was earned by Gemphire's named executive officers during the fiscal years ended December 31, 2018 and 2017.

| NAME AND PRINCIPAL POSITION | YEAR | SALARY ($) | BONUS ($) | OPTION AWARDS ($)(1) | NON-EQUITY INCENTIVE PLAN COMPENSATION | ALL OTHER COMPENSATION ($)(2) | TOTAL ($) |
|---|---|---|---|---|---|---|---|
| Steven Gullans, Ph.D.**(3)** | 2018 | 346,932 | 250,000 | 1,299,138 | — | 6,751 | 1,902,821 |
| *President and Chief Executive Officer* | 2017 | 30,376 | — | 353,264 | — | 23,575 | 407,215 |
| Charles L. Bisgaier, Ph.D. | 2018 | 330,000 | — | 298,240 | — | 11,183 | 639,423 |
| *Chief Scientific Officer* | 2017 | 330,000 | 30,000 | — | — | 258 | 360,258 |
| Lee Golden, M.D.**(4)** | 2018 | 264,625 | — | 919,572 | — | 193,278 | 1,377,476 |
| *Former Chief Medical Officer* | 2017 | 365,000 | 39,000 | 133,870 | — | 258 | 538,128 |
| Jeffrey Mathiesen**(5)** | 2018 | 242,875 | — | 298,240 | — | 183,560 | 724,675 |
| *Former Chief Financial Officer* | 2017 | 335,000 | — | — | — | 738 | 335,738 |
| Seth Reno | 2018 | 275,000 | — | 298,240 | — | 10,566 | 583,805 |
| *Chief Commercial Officer* | 2017 | 275,000 | 20,000 | — | — | 581 | 295,581 |

(1) The amounts reported reflect the aggregate grant date fair value of the stock options granted to Gemphire's named executive officers during 2017 and 2018, as computed in accordance with FASB Accounting Standards Codification Topic 718 (ASC 718). Assumptions used in the calculation of these amounts are included in Note 9 to Gemphire's audited financial statements included elsewhere in this proxy statement/prospectus/information statement. As required by SEC rules, the amounts shown exclude the impact of estimated forfeitures related to service-based vesting conditions.

(2) Unless otherwise noted, amounts reflect the dollar value of group life insurance premiums paid during 2017 and 2018 with respect to life insurance for the named executive officer and Gemphire 401(k) matching contributions, which were $6,667, $11,000, $10,585, $11,000 and $9,972 for Dr. Gullans, Dr. Bisgaier, Dr. Golden, Mr. Mathiesen and Mr. Reno, respectively, for 2018. No matching contributions were made in 2017.

(3) Amounts reported reflect that Dr. Gullans was employed as President and Chief Executive Officer of Gemphire commencing May 1, 2018 and prior to that time as Interim President and Chief Executive

Officer of Gemphire commencing May 23, 2017. Prior to his appointment as Interim President and Chief Executive Officer, Dr. Gullans was a non-employee director. Dr. Gullans's cash compensation did not change as a result of his appointment as Gemphire's Interim President and Chief Executive Officer until his employment agreement was executed in connection with his appointment as President and Chief Executive Officer in May 2018.
For 2017, "Salary" reflects the amount paid to Dr. Gullans following his appointment as Interim President and Chief Executive Officer and "All Other Compensation" includes $23,575 paid to Dr. Gullans prior to his appointment as Interim President and Chief Executive Officer as cash fees for his service as a non-employee director. For 2018, "Bonus" reflects a signing bonus Dr. Gullans received in connection with his appointment as President and Chief Executive Officer in May 2018. As a named executive officer of Gemphire, compensation paid to Dr. Gullans for the entire 2018 and 2017 fiscal years is fully reflected in this table.

(4) Amounts reported for 2018 reflect that Dr. Golden's employment with Gemphire ended as of September 21, 2018. In addition to group life insurance premiums and 401(k) matching contributions described in footnote 2, "All Other Compensation" for 2018 includes a one-time, lump sum of $182,500, which was equal to 6 months of his annual base salary, paid to Dr. Golden in connection with his separation from Gemphire.

(5) Amounts reported for 2018 reflect that Mr. Mathiesen's employment with Gemphire ended as of September 21, 2018. In addition to group life insurance premiums and 401(k) matching contributions described in footnote 2, "All Other Compensation" for 2018 includes (i) a one-time, lump sum of $167,500, which was equal to 6 months of his annual base salary, and (ii) $4,507 for continued health insurance coverage paid to Mr. Mathiesen in connection with his separation from Gemphire.

**Narrative Disclosure to Gemphire Summary Compensation Table**

The compensation program for Gemphire's named executive officers for 2018 had three components: base salary, annual cash bonus and stock option grants. The below disclosure and tables explain each component of compensation in further detail.

*Base Salary.* There was no base salary increase for any of Gemphire's named executive officers for 2018, as compared to 2017, except that Dr. Gullans's base salary was set at $500,000 pursuant to his employment agreement entered into in connection with his appointment as President and Chief Executive Officer in May 2018. Prior to such time, he served as Interim President and Chief Executive Officer of Gemphire commencing May 23, 2017 and, in that role, continued to receive the compensation he received as a non-employee director.

*Cash Bonus.* In 2018, each of Gemphire's named executive officers had a target bonus, set forth as a percentage of annual base salary. The Gemphire Compensation Committee did not make any changes to the target bonuses of the named executive officers, as a percentage of base salary, for 2018. In 2018, target bonuses for Gemphire's named executive officers other than Dr. Gullans were 40% of base salary. Dr. Gullans's target bonus was set at 50% of base salary pursuant to his employment agreement entered into in connection with his appointment as President and Chief Executive Officer in May 2018. The payment of bonuses is in the discretion of the Gemphire Compensation Committee, and no bonuses were earned or paid for 2018.

*Equity Grants.* On January 28, 2018, considering the recommendations of Haigh & Company, the Gemphire Compensation Committee granted to each of Dr. Bisgaier, Mr. Mathiesen and Mr. Reno an option to purchase up to 48,000 shares of Gemphire common stock and to Dr. Golden an option to purchase up to 148,000 shares of Gemphire common stock, in each case, vesting in a series of 48 equal monthly installments on the last day of each month commencing on the grant date, subject to such executive's continuous service, and subject to acceleration upon a change in control.

In connection with his service as Interim President and Chief Executive Officer, on January 29, 2018, the Board granted Dr. Gullans an option to purchase up to 60,000 shares of Gemphire common

stock (the "January Options"), with a grant date fair value of $364,604, vesting in a series of 12 equal monthly installments on the last day of each month commencing on the grant date, subject to Dr. Gullans's continuous service, and subject to acceleration upon either (i) a change in control or (ii) the appointment of a replacement President and Chief Executive Officer.

Upon the appointment of Dr. Gullans as President and Chief Executive Officer on May 1, 2018, the terms of the January Options were amended so that they vest in a series of 48 equal monthly installments on the last day of each month commencing on the grant date, subject to Dr. Gullans's continuous service. Following the amendment, the grant date fair value of the January Options was determined to be $378,816. Additionally, pursuant to the employment agreement entered into with Dr. Gullans described below, on May 1, 2018, Dr. Gullans was also granted:

- an option to purchase up to 150,000 shares of Gemphire common stock with a grant date fair value of $514,846, vesting in a series of 48 equal monthly installments on the last day of each month commencing on the grant date, subject to Dr. Gullans's continuous service;
- an option to purchase up to 50,000 shares of Gemphire common stock with a grant date fair value of $191,010, vesting in a series of 48 equal monthly installments on the last day of each month commencing on the grant date, subject to Dr. Gullans's continuous service; and
- an option to purchase up to 100,000 shares of Gemphire common stock with a grant date fair value of $214,466, 50,000 of which vest on the date that the first patient in the first Phase 3 clinical trial of gemcabene in a non-orphan indication receives the first dose of gemcabene and 50,000 of which vest on the date when the Gemphire common stock achieves a certain target, in each case, if such event occurs on or before December 31, 2019, subject to Dr. Gullans's continuous service.

*All Other Compensation.* Gemphire maintains, and Gemphire's named executive officers participate in, a 401(k) defined contribution plan. Each participant may contribute to the plan through payroll deductions, up to 100% of his or her compensation limited to the maximum allowed by the IRS regulations. Gemphire provides employer "safe harbor" matching contributions to all participants, including Gemphire's named executive officers, equal to 100% of salary deferrals up to 3% of a participant's contributions and 50% of salary deferrals thereafter up to 5% of a participant's contributions.

***Employment Agreements***

Gemphire has entered into written employment agreements with each of its executive officers, and each of Gemphire's named executive officers has also executed its standard form of confidential information and invention assignment agreement.

*Offer Letter with Dr. Gullans.* On June 8, 2017, Gemphire entered into an offer letter with Dr. Gullans as Interim President and Chief Executive Officer, effective May 23, 2017. On May 30, 2017, the Gemphire Compensation Committee granted Dr. Gullans an option to purchase 60,000 shares of Gemphire common stock vesting monthly in equal increments over a 12 month period, subject to acceleration upon the appointment of a replacement Chief Executive Officer or upon a change in control, under the Gemphire 2015 Plan. The offer letter provided that Dr. Gullans will continue to receive the compensation he receives as a director of Gemphire and was able to participate in the benefit programs and arrangements to the extent available to Gemphire employees. Dr. Gullans also executed Gemphire's employee proprietary information, inventions assignment and non-competition agreement, which provides for confidentiality and non-compete and non-solicitation provisions, the latter for one year after termination of employment.

*Employment Agreement with Dr. Gullans.* On May 1, 2018, Gemphire entered into an employment agreement with Dr. Gullans. His employment agreement has an initial term of three years beginning on May 1, 2018 and automatically renews for an additional one year period at the end of the initial term and each anniversary thereafter provided that at least 90 days prior to the expiration of the initial term or any renewal term the board does not notify Dr. Gullans of its intention not to renew.

His employment agreement entitles Dr. Gullans to, among other benefits, the following compensation: (i) an annual base salary of at least $500,000, reviewed at least annually commencing with the review of compensation for the year ended December 31, 2020; (ii) a signing bonus of $250,000; (iii) an annual cash bonus in an amount of up to fifty percent (50%) of his annual base salary; (iv) participation in equity-based long-term incentive compensation plans generally available to senior executive officers of Gemphire (beginning in 2019); and (v) participation in welfare benefit plans, practices, policies and programs (including, without limitation, medical, prescription, dental, disability, employee life, group life, accidental death and travel accident insurance plans and programs) made available to other senior executive officers of Gemphire.

Additionally, pursuant to the employment agreement, Dr. Gullans was granted certain options to purchase Gemphire common stock as set forth under "—*Equity Grants*" above. Also as described above, pursuant to his employment agreement, Dr. Gullans consented to an extension of the vesting term of an option he was previously granted for 60,000 shares from 12 months to 48 months. Notwithstanding the vesting schedules set forth above, he may exercise all or a part of any such option, including the unvested portion, during his employment and within the term of such option; provided he enters into an early exercise purchase agreement with Gemphire with a vesting schedule that will result in the same vesting as if no early exercise had occurred and any unvested shares purchased will be subject to Gemphire's purchase option.

*Employment Agreements with Mr. Mathiesen and Dr. Bisgaier.* Gemphire entered into an employment agreement with each of Mr. Mathiesen and Dr. Bisgaier, effective as of the pricing of its initial public offering. The initial term of each employment agreement is from the effective date, August 4, 2016, through the third anniversary of the effective date and automatically renews for an additional one year period at the end of the initial term and each anniversary thereafter, provided that at least 90 days prior to the expiration of the initial term or any renewal term the board does not notify such officer of its intention not to renew the employment period.

Each officer's employment agreement also entitles him to, among other benefits, the following compensation: (i) eligibility to receive an annual cash bonus of up to a percentage of his annual base salary as specified in his employment agreement at the sole discretion of the board and as determined by the the Gemphire Compensation Committee commensurate with the policies and practices applicable to other senior executive officers of Gemphire; (ii) an opportunity to participate in any equity based long-term incentive compensation plan commensurate with the terms and conditions applicable to other senior executive officers; and (iii) participation in welfare benefit plans, practices, policies and programs provided by Gemphire and its affiliated companies (including, without limitation, medical, prescription, dental, disability, employee life, group life, accidental death and travel accident insurance plans and programs) to the extent available to Gemphire's other senior executive officers.

*Separation and Release Agreement with Mr. Mathiesen.* On September 21, 2018, Gemphire entered into a separation and release agreement with Mr. Mathiesen. In connection with his departure from Gemphire, Mr. Mathiesen received certain benefits that he was entitled to receive under his employment agreement described above in connection with a termination without cause. Accordingly, under the separation and release agreement, Gemphire agreed (1) to pay Mr. Mathiesen a lump sum equal to $167,500, (2) that all of Mr. Mathiesen's outstanding stock options will (a) vest as if Mr. Mathiesen was employed by Gemphire through August 4, 2019 and (b) remain exercisable until the final termination date of such option awards under the applicable award agreement, (3) to pay the

monthly cost of premiums for continued health insurance coverage during the twelve-month period following Mr. Mathiesen's separation from Gemphire, provided Mr. Mathiesen does not qualify for health care coverage from another employer during that period; and (4) to reimburse Mr. Mathiesen for reasonable expenses incurred through the separation date that are reviewed and approved according to Gemphire's policy.

*Employment Agreement with Dr. Golden.* Gemphire entered into an employment agreement with Dr. Golden in October 2016. The initial term of his employment agreement is from the effective date through the third anniversary of the effective date and automatically renews for an additional one year period at the end of the initial term and each anniversary thereafter, provided that at least 90 days prior to the expiration of the initial term or any renewal term the board does not notify Dr. Golden of its intention not to renew the employment period.

Dr. Golden's employment agreement entitled him to, among other benefits, the following compensation: (i) eligibility to receive an annual cash bonus of up to 40% of his annual base salary as determined by the the Gemphire Compensation Committee commensurate with the policies and practices applicable to other senior executive officers of Gemphire; (ii) an opportunity to participate in any equity based long-term incentive compensation plan commensurate with the terms and conditions applicable to other senior executive officers; and (iii) participation in welfare benefit plans, practices, policies and programs provided by Gemphire and its affiliated companies (including, without limitation, medical, prescription, dental, disability, employee life, group life, accidental death and travel accident insurance plans and programs) to the extent available to Gemphire's other senior executive officers. In connection with his hiring as Chief Medical Officer, on October 5, 2016, the Gemphire Compensation Committee granted Dr. Golden an option to purchase 126,000 shares of Gemphire common stock vesting as follows: 12,000 shares underlying the option vested immediately on October 5, 2016, one-fourth of the remaining shares vested on October 31, 2017 and the balance of the shares vest in a series of 36 successive equal monthly installments measured from October 31, 2017, subject to acceleration upon a change in control.

*Separation and Release Agreement with Dr. Golden.* On September 23, 2018, Gemphire entered into a separation and release agreement with Dr. Golden effective as of September 21, 2018. In connection with his departure from Gemphire, Dr. Golden received certain benefits that he was entitled to receive under his employment agreement described above in connection with a termination without cause. Accordingly, under the separation and release agreement, Gemphire agreed (1) to pay Dr. Golden a lump sum equal to $182,500, (2) that all of Dr. Golden's outstanding stock options will (a) vest as if Dr. Golden was employed by Gemphire through October 5, 2019 and (b) remain exercisable until the final termination date of such option awards under the applicable award agreement, and (3) to reimburse Dr. Golden for reasonable expenses incurred through the separation date that are reviewed and approved according to Gemphire's policy.

*Employment Agreement with Mr. Reno.* Gemphire entered into an employment agreement with Mr. Reno, effective August 15, 2016. The initial term of the employment agreement is from the effective date through the first anniversary of the effective date and automatically renews for an additional one year period at the end of his initial term and each anniversary thereafter, provided that at least 90 days prior to the expiration of his initial term or any renewal term the board does not notify Mr. Reno of its intention not to renew the employment period.

Mr. Reno's employment agreement also entitles him to, among other benefits, the following compensation: (i) eligibility to receive an annual cash bonus of up to a percentage of his annual base salary as specified in his employment agreement at the sole discretion of the board and as determined by the the Gemphire Compensation Committee commensurate with the policies and practices applicable to other senior executive officers of Gemphire; (ii) an opportunity to participate in any stock option, performance share, performance unit or other equity based long-term incentive compensation

plan commensurate with the terms and conditions applicable to other senior executive officers ; and (iii) participation in welfare benefit plans, practices, policies and programs provided by Gemphire and its affiliated companies (including, without limitation, medical, prescription, dental, disability, employee life, group life, accidental death and travel accident insurance plans and programs) to the extent available to Gemphire's other senior executive officers.

***Pre-Merger Amendments***

On July 24, 2019, Gemphire entered into amendments to the employment agreements of its executive officers to reduce the cash severance obligation owed to each executive in connection with the termination of their employment upon the Closing of the merger, and on September 30, 2019, Gemphire entered into second amendments to such employment agreements to reduce the base salaries of its executive officers. The second amendment with Mr. Reno also allows him to provide consulting services to NeuroBo. The above descriptions describe the terms of the original employment agreements; for a discussion of the amendments and payments in connection with the merger, please see the section entitled *"The Merger—Interests of Gemphire Directors and Executive Officers in the Merger—Merger-Related Compensation of Executive Officers and Directors—Executive Officers*."

**Gemphire Outstanding Equity Awards at December 31, 2018**

The following table sets forth information regarding outstanding equity awards held by Gemphire's named executive officers as of December 31, 2018:

| | | Option Awards(1) | | | | |
|---|---|---|---|---|---|---|
| NAME | GRANT DATE | NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS EXERCISABLE (#) | NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS UNEXERCISABLE (#) | NUMBER OF SECURITIES UNDERLYING UNEXERCISED UNEARNED OPTIONS (#) | OPTION EXERCISE PRICE ($) | OPTION EXPIRATION DATE |
| Steven Gullans, Ph.D. | August 4, 2016 | 35,000(2) | 25,000 | — | 10.00 | August 3, 2026 |
| | May 30, 2017 | 60,000(3) | — | — | 10.26 | May 29, 2027 |
| | January 29, 2018 | 15,000(4) | 45,000 | — | 10.44 | January 28, 2028 |
| | May 1, 2018 | 50,000(5) | — | — | 5.56 | April 30, 2028 |
| | May 1, 2018 | 150,000(5) | — | — | 5.56 | April 30, 2028 |
| | May 1, 2018 | — | — | 100,000(6) | 5.56 | April 30, 2028 |
| Charles L. Bisgaier, Ph.D. | August 4, 2016 | 87,500(2) | 62,500 | — | 10.00 | August 3, 2026 |
| | January 28, 2018 | 12,000(4) | 36,000 | — | 10.10 | January 27, 2028 |
| Lee Golden, M.D. | October 5, 2016 | 95,125(7)(8) | — | — | 10.80 | October 4, 2026 |
| | March 28, 2017 | 12,917(8) | — | — | 11.15 | March 27, 2027 |
| | January 28, 2018 | 64,750(8) | — | — | 10.10 | January 27, 2028 |
| Jeffrey Mathiesen | September 25, 2015 | 45,093(9) | — | — | 3.59 | September 24, 2025 |
| | August 4, 2016 | 157,500(9) | — | — | 10.00 | August 3, 2026 |
| | January 28, 2018 | 19,000(9) | — | — | 10.10 | January 27, 2028 |
| Seth Reno | August 17, 2015 | 51,299(10) | — | — | 2.12 | August 16, 2025 |
| | August 4, 2016 | 87,500(2) | 62,500 | — | 10.00 | August 3, 2026 |
| | January 28, 2018 | 12,000(4) | 36,000 | — | 10.10 | January 27, 2028 |

(1) All of the outstanding stock option awards were granted under the Gemphire 2015 Plan unless otherwise noted.

(2) The shares underlying the option vest monthly in equal increments over a 48 month period beginning on August 4, 2016.

(3) The shares underlying the option vest monthly in equal increments over a 12 month period beginning on May 30, 2017.

(4) The shares underlying the option vest monthly in equal increments over a 48 month period beginning on January 31, 2018. Dr. Gullans is permitted to exercise unvested portions of this option, however, these shares will be subject to the same vesting schedule, and Gemphire will have a repurchase option for such unvested shares.

(5) The shares underlying the option vest monthly in equal increments over a 48 month period on the last day of the month beginning on May 31, 2018. Dr. Gullans is permitted to exercise unvested portions of this option, however, these shares will be subject to the same vesting schedule, and Gemphire will have a repurchase option for such unvested shares.

(6) The shares underlying the option vest (i) with respect to 50,000 shares, on the date that the first patient in the first Phase 3 clinical trial of gemcabene in a non-orphan indication receives the first dose of gemcabene and (ii) with respect to the other 50,000 shares, on the date when the consecutive day volume weighted average closing price of Gemphire common stock achieves a certain target, in each case, if such event occurs on or before December 31, 2019. Dr. Gullans is permitted to exercise unvested portions of this option, however, these shares will be subject to the same vesting schedule, and Gemphire will have a repurchase option for such unvested shares.

(7) These options were granted under the Gemphire Inducement Plan.

(8) Under the separation and release agreement with Dr. Golden, Gemphire agreed that all of Dr. Golden's outstanding stock options vested as if Dr. Golden was employed by Gemphire through October 5, 2019. All remaining options were forfeited.

(9) Under the separation and release agreement with Mr. Mathiesen, Gemphire agreed that all of Mr. Mathiesen's outstanding stock options vested as if Mr. Mathiesen was employed by Gemphire through August 4, 2019. All remaining options were forfeited.

(10) 10,000 shares underlying the option vested immediately on August 17, 2015; the balance of the shares vested in 36 monthly increments beginning on August 31, 2015.

**Gemphire Potential Payments Upon Termination or Change in Control**

Described below are potential payments to executive officers upon a termination or change in control that is unrelated to the proposed merger. For a discussion of payments upon termination or change in control in connection with the merger, please see the section entitled "*The Merger—Interests of Gemphire Directors and Executive Officers in the Merger—Merger-Related Compensation of Executive Officers and Directors—Executive Officers.*"

***Steven Gullans***

Pursuant to his employment agreement, regardless of the manner in which Dr. Gullans service terminates, he is entitled to receive amounts earned during his term of service, including salary and other benefits. Gemphire is permitted to terminate the employment of Dr. Gullans for the following reasons: (1) death or disability, (2) Termination for Cause (as defined below) or (3) for any other reason or no reason.

Dr. Gullans is permitted Termination for Good Reason (as defined below) of his employment. In addition, he may terminate his employment upon written notice to Gemphire 30 days prior to the effective date of such termination. In the event of his death during the employment period or a termination due to his disability, Dr. Gullans or his beneficiaries or legal representatives shall be provided the sum of (a) any annual base salary earned, but unpaid, for services rendered to Gemphire on or prior to the date on which the employment period ends and (b) the bonus that would have been payable to him subject to any performance conditions and (c) certain other benefits provided for in his employment agreement (the "Gullans Unconditional Entitlements").

In the event of Dr. Gullans's Termination for Cause by Gemphire or the termination of his employment as a result of his resignation other than a Termination for Good Reason, Dr. Gullans shall be provided the Gullans Unconditional Entitlements. In the event of (i) a Termination for Good Reason by Dr. Gullans, (ii) expiration of his employment period as a result of Gemphire's decision not to extend his employment beyond the initial term or (iii) the exercise by Gemphire of its termination rights to terminate him other than by Termination for Cause, death or disability, Dr. Gullans shall be provided the Gullans Unconditional Entitlements and, subject to Dr. Gullans signing and delivering to Gemphire and not revoking a general release of claims in favor of Gemphire and certain related parties, Gemphire shall provide him a severance amount equal to (i) 1 times his annual base salary as of the termination date less the Non-Compete Amount (if applicable) (as defined in his employment agreement) and (ii) a prorated cash bonus for the year as well as continued medical coverage for 12 months following such termination, immediate vesting of all stock options, which become immediately exercisable in accordance with the stock option award documents, subject to the same

conditions that would be applicable to Dr. Gullans if he remained employed through the 18 month anniversary of the termination date and continued vesting of equity awards in accordance with the terms of the award agreements.

In the event that Gemphire consummates a transaction that constitutes a change in control (other than the merger) and the options described in the section entitled "*—Narrative Disclosure to Gemphire Summary Compensation Table—Employment Agreements*" are not assumed, continued or substituted, then all of the unvested shares underlying such options shall fully vest and become exercisable upon the effectiveness of such change in control.

In the event of Dr. Gullans's Termination for Good Reason, the exercise by Gemphire of its right to terminate Dr. Gullans other than a Termination for Cause, Mr. Gullans's death or disability or Gemphire's election not to extend the employment period upon expiration of the initial term or any renewal term, in each case, within eighteen months following a change in control, Dr. Gullans shall receive (i) the Gullans Unconditional Entitlements, (ii) 1.5 times the sum of Dr. Gullans's annual base salary and cash bonus (calculated based on the greater of Dr. Gullans's target bonus for such year or the average bonus paid to Dr. Gullans in the prior two fiscal years), (iii) accelerated vesting of all equity awards that were assumed, continued or substituted by the surviving or acquiring corporation in the change in control and remain subject to time-based vesting conditions, if any, and (iv) the Conditional Benefits except the Severance Amount.

Under Dr. Gullans's employment agreement, "Termination for Cause" means a termination of Dr. Gullans's employment by Gemphire due to (A) an intentional act or acts of dishonesty undertaken by him and intended to result in substantial gain or personal enrichment to Dr. Gullans at the expense of Gemphire, (B) unlawful conduct or gross misconduct that is willful and deliberate on his part in the performance of his employment duties and that, in either event, is materially injurious to Gemphire, (C) his conviction of, or Dr. Gullans's entry of a no contest or nolo contendere plea to, a felony, (D) material breach by the Dr. Gullans of his fiduciary obligations as an officer or director of Gemphire, (E) a persistent failure by Dr. Gullans to perform the duties and responsibilities of his employment, which failure is willful and deliberate on Dr. Gullans's part and is not remedied within 30 days after his receipt of written notice from Gemphire of such failure; or (F) material breach of any terms and conditions of his employment agreement, which breach has not been cured by him within ten days after written notice thereof to Dr. Gullans from Gemphire. No act or failure to act on Dr. Gullans's part shall be considered "dishonest," "willful" or "deliberate" unless intentionally done or omitted to be done in bad faith and without reasonable belief that Dr. Gullans's action or omission was in the best interests of Gemphire. Any act, or failure to act, based upon authority given pursuant to a resolution duly adopted by the Board shall be conclusively presumed to be done, or omitted to be done, by Dr. Gullans in good faith and in the best interests of Gemphire.

Under Dr. Gullans's employment agreement, "Termination for Good Reason" means Dr. Gullans's termination of his employment within 30 days of Gemphire's failure to cure, in accordance with the procedures set forth below, any of the following events: (A) a reduction in his annual base salary as in effect immediately prior to such reduction without his written consent, unless such reduction is made pursuant to an across the board reduction applicable to all senior executives of Gemphire; (B) the removal of Dr. Gullans by Gemphire from the position of President and Chief Executive Officer; (C) a material reduction in his duties and responsibilities as in effect immediately prior to such reduction; (D) a change in his reporting relationships; or (E) a material breach of any material provision of his employment agreement by Gemphire to which Dr. Gullans shall have delivered a written notice to the board within 45 days of Dr. Gullans's having actual knowledge of the occurrence of one of such events stating that he intends to terminate his employment by Termination for Good Reason and specifying the factual basis for such termination, and such event, if capable of being cured, shall not have been cured within 21 days of the receipt of such notice. Notwithstanding the foregoing, a termination shall

not be treated as a Termination for Good Reason if he has consented in writing to the occurrence of the event giving rise to the claim of Termination for Good Reason.

***Charles L. Bisgaier and Seth Reno***

Pursuant to Mr. Bisgaier's and Mr. Reno's employment agreements, regardless of the manner in which their service terminates, such named executive officer is entitled to receive amounts earned during his term of service, including salary and other benefits. In addition, each of Gemphire's named executive officers is eligible to receive certain benefits described above under *"—Narrative Disclosure to Gemphire Summary Compensation Table—Employment Agreements*."

Gemphire is permitted to terminate the employment of Dr. Bisgaier or Mr. Reno for the following reasons: (1) death or disability, (2) Termination for Cause (as defined below) or (3) for any other reason or no reason. Each such officer is permitted Termination for Good Reason (as defined below) of such officer's employment. In addition, each such officer may terminate his or her employment upon written notice to Gemphire 30 days prior to the effective date of such termination.

In the event of such officer's death during the employment period or a termination due to such officer's disability, such officer or his or her beneficiaries or legal representatives shall be provided the sum of (a) any annual base salary earned, but unpaid, for services rendered to Gemphire on or prior to the date on which the employment period ends and (b) the bonus that would have been payable to such officer subject to any performance conditions and (c) certain other benefits provided for in the employment agreement (the "Unconditional Entitlements").

In the event of such officer's Termination for Cause by Gemphire or the termination of such officer's employment as a result of such officer's resignation other than a Termination for Good Reason, such officer shall be provided the Unconditional Entitlements.

In the event of a Termination for Good Reason by such officer or the exercise by Gemphire of its termination rights to terminate such officer other than by Termination for Cause, death or disability, such officer shall be provided the Unconditional Entitlements and, subject to such officer signing and delivering to Gemphire and not revoking a general release of claims in favor of Gemphire and certain related parties, Gemphire shall provide such officer a severance amount equal to (i) 0.5-1.0 (which ratio varies based on the negotiated terms in the agreement of such officer) times such officer's annual base salary as of the termination date less the Non-Compete Amount (if applicable) (as defined in his or her employment agreement) and (ii) a prorated cash bonus for the year as well as continued medical coverage for 12 months following such termination, immediate vesting of all stock options, which become immediately exercisable in accordance with the stock option award documents, subject to the same conditions that would be applicable to such officer if he or she remained employed through the end of the employment period and continued vesting of equity awards in accordance with the terms of the award agreements (the "Conditional Benefits").

If, within two years after a change in control (other than the merger), Gemphire terminates such officer other than due to such officer's death or disability or a Termination for Cause, or such officer effects a Termination for Good Reason, Gemphire will pay to such officer, in a lump sum in cash within 30 days after the termination date, the aggregate of: (i) the Unconditional Entitlements; and (ii) the amount equal to the product of 1.0-1.5 (which ratio varies based on the negotiated terms in the agreement of such officer) times the sum of (y) such officer's annual base salary, and (z) the greater of the target bonus for the then current fiscal year under certain benefit plans or any successor annual bonus plan and the average annual bonus paid to or for the benefit of such officer for the prior three full years (or any shorter period during which such officer had been employed by Gemphire). In addition, Gemphire shall provide such officer the Conditional Benefits minus such officer's severance amount. The award agreements for the options granted to Gemphire's executive officers, including

Dr. Bisgaier and Dr. Golden, also contain terms providing for accelerated vesting of stock options upon a change in control.

Under the employment agreements, "Termination for Cause" means a termination of the officer's employment by Gemphire due to (A) an intentional act or acts of dishonesty undertaken by the officer and intended to result in substantial gain or personal enrichment to the officer at the expense of Gemphire, (B) unlawful conduct or gross misconduct that is willful and deliberate on the officer's part and that, in either event, is materially injurious to Gemphire, (C) the conviction of the officer of, or the officer's entry of a no contest or nolo contendere plea to, a felony, (D) material breach by the officer of the officer's fiduciary obligations as an officer or director of Gemphire, (E) a persistent failure by the officer to perform the duties and responsibilities of the officer's employment under the officer's employment agreement, which failure is willful and deliberate on the officer's part and is not remedied by the officer within 30 days after the officer's receipt of written notice from Gemphire of such failure; or (F) material breach of any terms and conditions of the respective employment agreement by the officer, which breach has not been cured by the officer within ten days after written notice thereof to the officer from Gemphire. No act or failure to act on the officer's part shall be considered "dishonest," "willful" or "deliberate" unless intentionally done or omitted to be done by the officer in bad faith and without reasonable belief that the officer's action or omission was in the best interests of Gemphire. Any act, or failure to act, based upon authority given pursuant to a resolution duly adopted by the Board shall be conclusively presumed to be done, or omitted to be done, by the officer in good faith and in the best interests of Gemphire.

Under the employment agreements, "Termination for Good Reason" means a termination of the officer's employment by such officer within 30 days of Gemphire's failure to cure, in accordance with the procedures set forth below, any of the following events: (A) a reduction in the officer's annual base salary as in effect immediately prior to such reduction by more than 10% without the officer's written consent, unless such reduction is made pursuant to an across the board reduction applicable to all senior executives of Gemphire; (B) the removal of the officer by Gemphire from the executive officer position held; (C) a material reduction in the officer's duties and responsibilities as in effect immediately prior to such reduction; or (D) a material breach of any material provision of the employment agreement by Gemphire of which the officer shall have delivered a written notice to the board within 45 days of the officer's having actual knowledge of the occurrence of one of such events stating that the officer intends to terminate the officer's employment by Termination for Good Reason and specifying the factual basis for such termination, and such event, if capable of being cured, shall not have been cured within 21 days of the receipt of such notice. Notwithstanding the foregoing, a termination shall not be treated as a Termination for Good Reason if the officer shall have consented in writing to the occurrence of the event giving rise to the claim of Termination for Good Reason.

Pursuant to the employment agreements, to the extent the officers remain employed as of the closing date of a change in control, any stock options they hold as of the effective date of employment agreement will fully vest, effective as of the closing date of the change in control.

***Lee Golden***

In connection with Dr. Golden's termination in September 2018, the Gemphire Board approved a separation and release agreement, under which Dr. Golden received a severance payment. Dr. Golden's separation and release agreement is described above in the section entitled "*—Narrative Disclosure to Gemphire Summary Compensation Table—Employment Agreements—Separation and Release Agreement with Dr. Golden*".

***Jeffrey Mathiesen***

In connection with Mr. Mathiesen's termination in September 2018, the Board approved a separation and release agreement, under which Mr. Mathiesen received a severance payment. Mr. Mathiesen's separation and release agreement is described above under the section entitled "*—Narrative Disclosure to Gemphire Summary Compensation Table—Employment Agreements—Separation and Release Agreement with Mr. Mathiesen*".

***Amended and Restated 2015 Equity Incentive Plan and Inducement Plan***

The Gemphire Board initially adopted the Gemphire 2015 Plan in April 2015, and Gemphire Stockholders approved the Gemphire 2015 Plan in April 2015. In April 2016, the Gemphire Board and Gemphire Stockholders approved the amendment and restatement of the Gemphire 2015 Plan in order to increase the share reserve under the Gemphire 2015 Plan, include an "evergreen" provision, allow limited delegation of award authority to an executive officer and include certain annual limits on equity awards, which amendments became effective on August 4, 2016. In May 2018, the Gemphire Board and Gemphire Stockholders approved an amendment to the Gemphire 2015 Plan to increase the number of shares of Gemphire common stock reserved for issuance under the Gemphire 2015 Plan by 300,000 shares without any change to the "evergreen" provision. Gemphire refers to such amended and restated plan, as amended in 2018, as the Gemphire 2015 Plan.

The Gemphire Board adopted the Gemphire Inducement Plan in September 2016, and amended the Gemphire Inducement Plan in April 2018 to increase the aggregate number of shares of Gemphire common stock that may be issued under the Gemphire Inducement Plan. Pursuant to the Gemphire Inducement Plan, as amended, Gemphire has reserved 450,000 shares of Gemphire common stock to be used exclusively for grants of awards to individuals who were not previously employees or directors of Gemphire, as an inducement material to the individual's entry into employment with Gemphire within the meaning of Rule 5635(c)(4) of the Nasdaq Listing Rules. The Gemphire Inducement Plan was approved, amended and can be further amended to increase the number of shares reserved thereunder at any time by the Gemphire Board without stockholder approval pursuant to Rule 5635(c)(4) of the Nasdaq Listing Rules. The terms and conditions of the Gemphire Inducement Plan are substantially similar to the Gemphire 2015 Plan.

Under the Gemphire 2015 Plan and the Gemphire Inducement Plan, the Gemphire Compensation Committee may provide, in individual award agreements or in any other written agreement between a participant and Gemphire, that the stock award will be subject to additional acceleration of vesting and exercisability in the event of a change of control. Under the Gemphire 2015 Plan, a change of control is generally (1) the acquisition by a person or entity of more than 50% of Gemphire's combined voting power other than by merger, consolidation or similar transaction; (2) a consummated merger, consolidation or similar transaction immediately after which Gemphire Stockholders cease to own more than 50% of the combined voting power of the surviving entity; (3) a consummated sale, lease or exclusive license or other disposition of all or substantially of Gemphire's assets; or (4) the replacement of a majority of the directors who were on the Gemphire Board at the time the Gemphire 2015 Plan became effective, or the Incumbent Board, by directors who were not elected to the board by a majority of the directors who were sitting on the Incumbent Board. Accordingly, the Gemphire Compensation Committee, pursuant to the individual award agreements and/or individual employment agreements, for all unvested options held by Gemphire's named executive officers, except the option awards granted to Dr. Gullans in 2018 (the treatment upon a change of control of which is described in "*—Steven Gullans*" above) provided for accelerated vesting of such options upon a change in control.

For more information concerning the treatment of Gemphire Options in connection with the merger, see the section entitled "*The Merger Agreement—Treatment of Gemphire Options and Warrants"* in this proxy statement/prospectus/information statement.

## NEUROBO EXECUTIVE COMPENSATION

NeuroBo's executive officers for the year ended December 31, 2018 and the executive officers who will serve as executive officers of the combined company following the merger, are referred to in this proxy statement/prospectus/information statement as the "named executive officers." The named executive officers who will serve as executive officers following the merger and their current positions with NeuroBo are as follows:

| | |
|---|---|
| John L. Brooks, III | President, Chief Executive Officer and Interim Chief Financial Officer |
| Mark Versavel, M.D., Ph.D., M.B.A. | Chief Medical Officer |

**NeuroBo Summary Compensation Table for 2017 and 2018**

The following table sets forth information regarding compensation earned with respect to the years ended December 31, 2018 and 2017 by NeuroBo's named executive officers. No bonuses were earned by any named executive officer for the years ended December 31, 2017 and 2018, and no Option Awards, Stock Awards or Non-Equity Incentive Plan Compensation or Nonqualified Deferred Compensation were earned by any named executive officer for the years ended December 31, 2017 and 2018. Except as listed below, no individual previously or currently employed by NeuroBo who is expected to be an executive officer of the combined company following the merger earned total compensation in excess of $100,000 for the years ended December 31, 2017 and 2018. As shown in the table, no compensation was earned by the named executive officers for the year ended December 31, 2017.

| Name and Principal Position | Year | Salary ($)(1) | Total ($) |
|---|---|---|---|
| John L. Brooks, III | 2018 | 239,422 | 239,422 |
| *President, Interim Chief Financial Officer, Chief Executive Officer and Director(2)* | 2017 | — | — |
| Mark Versavel, M.D., Ph.D., M.B.A. | 2018 | 182,824 | 182,824 |
| *Chief Medical Officer(3)* | 2017 | — | — |
| Jeong Gu Kang, Ph.D. | 2018 | 152,115 | 152,115 |
| *Former Vice President, Former President, and Former Vice President and Chief Operating Officer and Former Director(4)* | 2017 | — | — |

(1) The amounts in this column for Mr. Brooks and Dr. Versavel represent amounts paid pursuant to consulting agreements by and between NeuroBo and limited liability companies wholly owned by Mr. Brooks and Dr. Versavel respectively, as further described below.

(2) Mr. Brooks was appointed to serve as NeuroBo's President and Chief Executive Officer in February 2018, as NeuroBo's Interim Chief Financial Officer in July 2019, and has served as a member of the NeuroBo Board since April 2018. No compensation was earned by Mr. Brooks in connection with his service as a member of the NeuroBo Board or in connection with his services as President and Chief Executive Officer prior to 2018. Mr. Brooks' consulting agreement and amendments thereto (as further described in the narrative below) provided that NeuroBo would grant Mr. Brooks options to purchase up to 360,000 shares of NeuroBo common stock on terms to be decided by the NeuroBo Board. No grant was made pursuant to such agreements until January 2019.

(3) Dr. Versavel was appointed to serve as NeuroBo's Chief Medical Officer in February 2018. No compensation was earned by Dr. Versavel connection with his service as Chief Medical Officer in 2018 except as described in footnote 1 pursuant to consulting agreements. Dr. Versavel's consulting

agreement and amendments thereto (as further described in the narrative below) provided that NeuroBo would grant Dr. Versavel options to purchase up to 300,000 shares of NeuroBo common stock on terms to be decided by the NeuroBo Board. No grant was made pursuant to such agreements until January 2019.

(4) Dr. Kang served as NeuroBo's Vice President from September 2017 until January 2018, as NeuroBo's President from January 2018 until February 2018, as NeuroBo's Vice President and Chief Operating Officer from February 2018 until February 2019 and as a member of the NeuroBo Board from July 2017 until February 2019. No compensation was earned by Dr. Kang in connection with his service as a member of the NeuroBo Board, as Vice President of NeuroBo from September 2017 until January 2018 or for his service as President from January 2018 until February 2018. Accordingly, the amount reported for Dr. Kang for 2018 in the "Salary" column represents his salary paid as Vice President and Chief Operating Officer starting in February 2018.

**Narrative Disclosure to NeuroBo Summary Compensation Table**

*Brooks Consulting Agreements*

On February 1, 2018, Healthcare Capital LLC, a Massachusetts limited liability company wholly owned and controlled by Mr. Brooks, and NeuroBo entered into a Consulting Agreement (the "Initial Brooks Consulting Agreement") pursuant to which Mr. Brooks agreed to provide certain professional services, including services as NeuroBo's Chief Executive Officer for approximately 32 hours per month in exchange for cash compensation of $10,000 per month payable in arrears on the last business day of the month. Mr. Brooks was also eligible to receive reimbursement for certain out of pocket costs approved in advance by NeuroBo. The Initial Brooks Consulting Agreement was to continue on a month to month basis unless and until the death or disability of Mr. Brooks, the date Mr. Brooks ceased to be the sole owner of Healthcare Capital LLC, it was terminated for cause or May 1, 2018, provided NeuroBo and Healthcare Capital LLC had not previously agreed to extend the term. The Initial Brooks Consulting Agreement was also terminable upon the mutual agreement of the parties or upon 10 days' written notice by either party. The Initial Brooks Consulting Agreement contained terms customary for consulting agreements of this nature, including non-solicitation provisions applicable during the term and for the three year period following termination of the Initial Brooks Consulting Agreement and provisions requiring that intellectual property relating to or resulting from the services provided by Mr. Brooks are the exclusive property of NeuroBo or its affiliates. Per the terms of the Initial Brooks Consulting Agreement, Mr. Brooks was not eligible to participate in any NeuroBo health, life, disability or any NeuroBo insurance plan or to participate in any 401(k), SEP-IRA or other pension or retirement plan offered by NeuroBo to its employees. The Initial Brooks Consulting Agreement was terminated by mutual consent on April 30, 2018.

On May 1, 2018, NeuroBo and Healthcare Capital LLC entered into a second Consulting Agreement (the "Second Brooks Consulting Agreement"). The Second Brooks Consulting Agreement contained similar terms to the Initial Brooks Consulting Agreement, but provided that Mr. Brooks should provide approximately 130 hours of service per month in exchange for cash compensation of $25,000 per month payable in arrears on the last day of the month and that the Second Brooks Consulting Agreement would terminate if not renewed prior to January 1, 2019. The Second Brooks Consulting Agreement also provided that NeuroBo would grant Mr. Brooks options to purchase up to 360,000 shares of NeuroBo common stock on terms to be decided by the NeuroBo Board. No grant was made pursuant to the Second Brooks Consulting Agreement until January 2019, at which time Mr. Brooks was awarded options to purchase 360,000 shares of NeuroBo common stock (which share figures have been adjusted to reflect the NeuroBo Stock Split) to vest as follows: 100,000 shares upon the commencement of NeuroBo's Phase 3 study of NB-01 in the United States (first subject screened); 160,000 shares upon the receipt by NeuroBo of a Series B preferred stock financing totaling at least

$30 million; 25,000 shares on January 28, 2019; and 12,500 shares on each of February 1, 2019, May 1, 2019, August 1, 2019, November 1, 2019, February 1, 2020 and May 1, 2020.

On January 1, 2019, NeuroBo and Healthcare Capital LLC agreed to extend the Second Brooks Consulting Agreement on substantially the same terms as then in effect, provided that the monthly consulting fee compensation was increased from $25,000 per month to $26,563 per month and that the Second Brooks Consulting Agreement would terminate if not renewed prior to January 1, 2020. The Second Brooks Consulting Agreement will be terminated upon the effectiveness of the Brooks Employment Agreement (described below).

During the year ended December 31, 2018, Healthcare Capital LLC earned $230,000 in monthly consulting fees and was paid $9,422 as reimbursements for expenses.

*Brooks Employment Agreement*

On July 24, 2019, NeuroBo and Mr. Brooks entered into an employment agreement (the "Brooks Employment Agreement") to be effective upon completion of the merger. The Brooks Employment Agreement provides for at-will employment of Mr. Brooks as NeuroBo's President and Chief Executive Officer, a base salary of $450,000 per year and that Mr. Brooks will be eligible to receive annual bonus compensation with an annual target bonus opportunity of 50% of his base salary. Mr. Brooks will also be eligible to receive a stock option grant at the conclusion of each fiscal year based upon performance criteria as provided by NeuroBo at the beginning of each fiscal year and to participate in NeuroBo's employee benefit plans in effect for similarly-situated employees. To the extent that any of these benefits are calculated based on seniority, Mr. Brooks will receive these benefits as if he had commenced employment on February 1, 2018.

*Versavel Consulting Agreements*

On February 1, 2018, vZenium LLC, a Massachusetts limited liability company wholly owned and controlled by Dr. Versavel, and NeuroBo entered into a Consulting Agreement (the "Initial Versavel Consulting Agreement") pursuant to which Dr. Versavel agreed to provide certain professional services, including services as NeuroBo's Chief Medical Officer for approximately 20 hours per month in exchange for cash compensation of $7,000 per month payable in arrears on the last business day of the month. Dr. Versavel was also eligible to receive reimbursement for certain out of pocket costs approved in advance by NeuroBo. The Initial Versavel Consulting Agreement was to continue on a month to month basis unless and until the death or disability of Dr. Versavel, the date Dr. Versavel ceased to be the sole owner of vZenium LLC, it was terminated for cause or until May 1, 2018, provided NeuroBo and vZenium LLC had not previously agreed to extend the term. The Initial Versavel Consulting Agreement was also terminable upon the mutual agreement of the parties or upon 10 days' written notice by either party. The Initial Versavel Consulting Agreement contained terms customary for consulting agreements of this nature, including non-solicitation provisions applicable during the term and for the three year period following termination of the Initial Versavel Consulting Agreement and provisions requiring that intellectual property relating to or resulting from the services provided by Dr. Versavel are the exclusive property of NeuroBo or its affiliates. Per the terms of the Initial Versavel Consulting Agreement, Dr. Versavel was not eligible to participate in any NeuroBo health, life, disability or any NeuroBo insurance plan or to participate in any 401(k), SEP-IRA or other pension or retirement plan offered by NeuroBo to its employees. The Initial Versavel Consulting Agreement was terminated upon mutual consent on April 30, 2018.

On May 1, 2018, NeuroBo and vZenium LLC entered into a second Consulting Agreement (the "Second Versavel Consulting Agreement"). The Second Versavel Consulting Agreement contained similar terms to the Initial Versavel Consulting Agreement, but provided that Dr. Versavel should provide approximately 104 hours of service per month from May 1, 2018 through September 30, 2018

and approximately 139 hours per month from October 1, 2018 through December 31, 2018 in exchange for cash compensation of $17,500 and $23,333 per month, respectively, payable in arrears on the last day of the month and that the Second Versavel Consulting Agreement would terminate if not renewed prior to January 1, 2019. The Second Versavel Consulting Agreement also provided that NeuroBo would grant Dr. Versavel options to purchase up to 300,000 shares of NeuroBo common stock on terms to be decided by the NeuroBo Board. No grant was made pursuant to the Second Versavel Consulting Agreement until January 2019 at which time Dr. Versavel was awarded options to purchase 300,000 shares of NeuroBo common stock (which share figures have been adjusted to reflect the NeuroBo Stock Split). 260,000 shares vest as follows: 70,000 shares upon the start of the Phase 3 study of NB-01 in the United States (first subject screened); 60,000 shares shall vest upon Phase 2a and IND approval of NB-02 from the FDA; 70,000 shares shall vest upon submission of the interim results of the Phase 3 study of NB-01 in the United States to the Data and Safety Monitoring Board; 15,000 shares shall vest on January 28, 2019; and 7,500 on each of February 1, 2019, May 1, 2019, August 1, 2019, November 1, 2019, February 1, 2020 and May 1, 2020. The remaining 40,000 shares vest as follows: 10,000 on January 31, 2019; and 5,000 shares on each of February 1, 2019, May 1, 2019, August 1, 2019, November 1, 2019, February 1, 2020 and May 1, 2020.

On January 1, 2019, NeuroBo and vZenium LLC agreed to extend the Second Versavel Consulting Agreement on substantially the same terms as then in effect, provided that Dr. Versavel would continue to provide 139 hours of service per month, the monthly consulting fee compensation was increased to $28,333 per month and that the Second Versavel Consulting Agreement would terminate if not renewed prior to January 1, 2020.

During the year ended December 31, 2018, vZenium LLC earned $178,499 in monthly consulting fees and was paid $4,325 as reimbursements for expenses.

*Kang Compensation Arrangements*

Employment Arrangements

Commencing on April 1, 2018 and until February 2019, Dr. Kang was eligible to receive a salary of $210,000 per year in exchange for 20 hours per week of his at-will service as NeuroBo's Vice President and Chief Operating Officer. The terms of this arrangement were later memorialized in a letter dated January 17, 2019 by and between NeuroBo and Dr. Kang (the "Kang Letter Agreement"). The Kang Letter Agreement also confirmed Dr. Kang was not eligible, as a part-time employee working less than 30 hours per week, to receive employment benefits such as medical insurance coverage, life, disability and dental insurance coverage, paid time off, stock options or to participate in any NeuroBo 401(k) plan and confirmed that Dr. Kang would and had been subject to NeuroBo's standard Non-Disclosure, Non-Competition and Non-Solicitation Agreements.

Consulting Agreement

In February 2019, Dr. Kang transitioned from his role as NeuroBo's Vice President and Chief Operating Officer to that of a consultant. On March 1, 2019, Dr. Kang and NeuroBo entered into an Independent Contractor Agreement pursuant to which Dr. Kang provides general advisory services to NeuroBo in exchange for consulting fees of $17,500 per month (the "Kang Consulting Agreement"). Per the terms of the Kang Consulting Agreement, Dr. Kang is eligible to receive reimbursement for certain out of pocket costs approved in advance by NeuroBo. The Kang Consulting Agreement continues on a month to month basis unless and until the death or disability of Dr. Kang, the date JK BioPharma Solutions, Inc. (for which Dr. Kang served as President and Chief Executive Officer from January 2013 to February 2019) ceases to be a NeuroBo Stockholder or it is terminated for cause. The Kang Consulting Agreement may also be terminated upon agreement of the parties or upon agreement of the NeuroBo Board. The Kang Consulting Agreement contains terms customary for consulting

agreements of this nature, including non-solicitation provisions applicable during the term and for the three year period following termination of the Kang Consulting Agreement and provisions requiring that intellectual property relating to or resulting from the services provided by Dr. Kang are the exclusive property of NeuroBo or its affiliates. Per the terms of the Kang Consulting Agreement, Dr. Kang is not eligible to participate in any NeuroBo health, life, disability or any NeuroBo insurance plan or to participate in any 401(k), SEP-IRA or other pension or retirement plan offered by NeuroBo to its employees. Dr. Kang did not earn compensation pursuant to the Kang Consulting Agreement during the year ended December 31, 2018.

**NeuroBo Outstanding Equity Awards at December 31, 2018**

None of NeuroBo's named executive officers held outstanding equity awards as of December 31, 2018. See the descriptions above of certain options to purchase NeuroBo common stock granted to Mr. Brooks and Dr. Versavel in Januray 2019.

**Potential Payments Upon Termination of Employment or Change in Control**

*Brooks Employment Agreement*

Per the terms of the Brooks Employment Agreement (as described above), if Mr. Brooks is terminated for any reason, including by NeuroBo for cause or by Mr. Brooks for any reason other than for good reason, Mr. Brooks will be eligible to receive any (i) earned or accrued base salary and paid time off through the last day of his employment, (ii) any unreimbursed business expenses incurred through the last day of his employment and (iii) any vested benefits due to Mr. Brooks under any NeuroBo benefit plan. In addition, the Brooks Employment Agreement provides that if NeuroBo terminates Mr. Brook's employment without cause or if Mr. Brooks terminates his employment for good reason, he will be entitled to the following, subject to obtaining from him a general release of claims (the "Brooks Severance Benefits"): (i) severance payments for 12 months at his then-current base salary payable in accordance with NeuroBo's payroll practices, (ii) an amount equal to his then-current target bonus prorated through the last day of his employment and payable within 60 days of his last day of employment, (iii) full acceleration of vesting for all stock options as of the last day of his employment, (iv) coverage under NeuroBo's group health plans for the twelve month period immediately following the date of his termination for Mr. Brooks and his eligible dependents at the same level and at the same cost had Mr. Brooks not been terminated and (v) to keep a laptop computer provided NeuroBo is satisfied the hard drive has been erased and that no NeuroBo data remains on the laptop. If Mr. Brooks's employment is terminated due to his disability or death, he or his estate, as applicable, will also be entitled to receive any earned, but unpaid annual bonus for the fiscal year ending immediately prior to the fiscal year of his termination for death or disability. Mr. Brooks will also be subject to confidentiality and protection of intellectual property provisions and noncompetition provisions and nonsolicitation provisions during his employment and the 12 months thereafter.

*Other Employment and Consulting Arrangements*

The consulting arrangements for Mr. Brooks, Dr. Versavel and Dr. Kang do not provide for benefits upon termination except for any unpaid payment for services performed. The Kang Letter Agreement did not, and the Kang Consulting Agreement does not, specifically provide for payments upon termination.

**Employment Benefit Plans**

*NeuroBo 2018 Plan*

The NeuroBo Pharmaceuticals, Inc. 2018 Stock Option Plan, as amended (the "NeuroBo 2018 Plan"), was established in December 2018 and approved by the NeuroBo Board and by NeuroBo Stockholders in January 2019.

Stock Awards. The NeuroBo 2018 Plan provides for the grant of incentive stock options, nonstatutory stock options, restricted stock awards and other stock-based awards. Incentive stock options may be granted only to employees. Other awards may be granted to employees, including officers, and to non-employee directors and consultants.

Share Reserve. The aggregate number of shares of NeuroBo common stock that may be issued pursuant to awards under the NeuroBo 2018 Plan is 10% of the outstanding shares of NeuroBo common stock, on a fully diluted basis. If an award granted under the NeuroBo 2018 Plan expires or otherwise terminates without being exercised in full, or if shares of stock still subject to restrictions are repurchased by NeuroBo, the shares will become available for subsequent issuance under the NeuroBo 2018 Plan, provided that shares subject to an option that are used to satisfy the option exercise price and shares subject to awards that are used to satisfy tax withholding are not returned to the NeuroBo 2018 Plan.

Administration. The NeuroBo Board, or a duly authorized committee thereof, has the authority to administer the NeuroBo 2018 Plan. Subject to the terms of the NeuroBo 2018 Plan, the NeuroBo Board or an authorized committee, referred to as the plan administrator, determines recipients, dates of grant, the numbers and types of stock awards to be granted and the terms and conditions of the stock awards, including the period of their exercisability and any vesting schedule applicable to a stock award. The plan administrator will also determine the exercise price, strike price or purchase price of awards granted and the types of consideration to be paid for the award as permitted by the NeuroBo 2018 Plan.

Stock Options. Incentive and nonstatutory stock options are evidenced by stock option agreements adopted by the plan administrator. The plan administrator determines the exercise price for a stock option, within the terms and conditions of the NeuroBo 2018 Plan, provided that the exercise price of a stock option generally cannot be less than 100% of the fair market value of NeuroBo common stock on the date of grant (in the case of nonqualified stock options, if the exercise price is less than the fair market value of the NeuroBo common stock, the terms of the options must comply with the requirements of Section 409A of the Code). Options granted under the NeuroBo 2018 Plan vest at the rate specified by the plan administrator. Acceptable consideration for the purchase of NeuroBo common stock issued upon the exercise of a stock option will be determined by the plan administrator and may include, without limitation, (1) cash, check or promissory note, (2) shares acquired directly from NeuroBo that have been held by the optionholder for at least six months and whose fair market value is equal to the aggregate exercise price of the shares to be purchased, (3) a cashless exercise program either directly with NeuroBo or as established by NeuroBo and (4) any combination of the foregoing.

Restricted Stock Awards. Restricted stock awards may be awarded to participants subject to such conditions and restrictions as the plan administrator may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with NeuroBo through a specified restricted period.

Transferability. Unless the plan administrator provides otherwise, awards generally are not transferable except by will or the laws of descent and distribution.

Changes to Capital Structure. In the event that there is a specified type of change in NeuroBo's capital structure, such as a stock split or recapitalization, appropriate adjustments will be made to (1) the class and maximum number of shares reserved for issuance under the NeuroBo 2018 Plan and (2) the class and number of shares and exercise price or purchase price, if applicable, of all outstanding stock awards.

Corporate Transactions. The NeuroBo 2018 Plan provides that if NeuroBo is to be consolidated with or acquired by another entity in a merger, consolidation or sale of all or substantially all of NeuroBo's assets, the plan administrator or the successor company's board of directors may, in its sole discretion, take any one or more of the following actions, as to outstanding options: (i) provide that such awards shall be assumed, or substantially equivalent awards shall be substituted, by the acquiring or successor corporation (or an affiliate thereof); (ii) upon written notice to a participant, provide that all of the participant's unexercised awards will terminate immediately prior to the consummation of such transaction unless exercised by the participant; or (iii) in the event of a corporate transaction under the terms of which holders of NeuroBo common stock will receive a cash payment for each share surrendered in the transaction, make or provide for a cash payment to the participants with respect to each award held by a participant. In addition, the plan administrator may provide that outstanding options shall become partially or fully exercisable prior to or upon such corporate transaction.

With respect to outstanding stock grants, the plan administrator shall make appropriate provision for the continuation of such stock grants on the same terms and conditions by substituting on an equitable basis for the NeuroBo common stock then subject to such stock grants either the consideration payable with respect to the outstanding NeuroBo common stock in connection with the corporate transaction or securities of any successor or acquiring entity. In lieu of the foregoing, the plan administrator may provide that, upon consummation of the transaction, each outstanding stock grant shall be terminated in exchange for payment of an amount equal to the consideration payable upon consummation of such transaction to a holder of the number of shares of NeuroBo common stock comprising such stock grant (to the extent such stock grant is no longer subject to any forfeiture or repurchase rights then in effect or, at the discretion of the plan administrator, all forfeiture and repurchase rights being waived).

Amendment and Termination. The plan administrator has the authority to amend, suspend, or terminate the NeuroBo 2018 Plan, provided that such action does not adversely affect the existing rights of any participant without such participant's consent and provided further that certain types of amendments will require the approval of NeuroBo Stockholders.

**Compensation Risk Management**

NeuroBo has considered the risk associated with its compensation policies and practices for all employees and believes it has designed its compensation policies and practices in a manner that does not create incentives that could lead to excessive risk taking that would have a material adverse effect on NeuroBo.

**Health and Welfare Benefits**

All of NeuroBo's full-time employees and certain of NeuroBo's part-time employees are eligible to participate in NeuroBo's employee benefit plans, including NeuroBo's medical, dental, 401(k) retirement plan, life and long-term disability insurance plans, in each case on the same basis as all of NeuroBo's other employees. Mr. Brooks, Dr. Versavel and Dr. Kang were not and are not eligible to participate in these health and welfare benefits during the terms of their respective consulting agreements, and Dr. Kang was not eligible to participate in these benefits during the term of the Kang Letter Agreement. Mr. Brooks will become eligible to participate in these benefits upon the effectiveness of the Brooks Employment Agreement upon completion of the merger.

## MATTERS BEING SUBMITTED TO A VOTE OF GEMPHIRE STOCKHOLDERS

**Proposal No. 1: Approval of the Issuance of Gemphire Common Stock to NeuroBo Stockholders pursuant to the Merger Agreement and the Change of Control of Gemphire Resulting from the Merger**

At the Gemphire annual meeting, Gemphire Stockholders will be asked to approve the issuance of Gemphire common stock pursuant to the Merger Agreement and the change of control of Gemphire resulting from the merger. Immediately after the merger, assuming the estimated Exchange Ratio of 29.2911, the Gemphire Securityholders immediately prior to the merger are expected to own, or hold rights to acquire, in the aggregate, approximately 3.74% of the Fully Diluted Closing Gemphire Common Stock and NeuroBo Securityholders immediately prior to the merger are expected to own, or hold rights to acquire, in the aggregate, approximately 96.26% of the Fully Diluted Closing Gemphire Common Stock, in each case, assuming Gemphire has a Parent Cash Amount of negative $3.4 million and that NeuroBo raises the minimum required amount of $24,240,000 in its Pre-Closing Financing. The Exchange Ratio is subject to adjustment prior to Closing of the merger (and Gemphire Securityholders could own more or less, and NeuroBo Securityholders could own more or less, of the combined company than currently anticipated).

Nasdaq Listing Rule 5635(a)(1) requires a company listed on Nasdaq to obtain stockholder approval prior to the issuance of common stock, among other things, in connection with the acquisition of the stock or assets of another company, if the number of shares of common stock to be issued is equal to or in excess of 20% of the number of shares of common stock then outstanding. The potential issuance of the shares of Gemphire common stock in the merger will exceed the 20% threshold under the Nasdaq Listing Rules. Accordingly, in order to ensure compliance with Nasdaq Listing Rule 5635(a)(1), Gemphire must obtain the approval of Gemphire Stockholders for the issuance of these shares in the merger.

Nasdaq Listing Rule 5635(b) requires a company listed on Nasdaq to obtain stockholder approval prior to an issuance of securities that will result in a "change of control" of the company. Although Nasdaq has not adopted any rule as to what constitutes a "change of control" for purposes of Rule 5635(b), Nasdaq has previously indicated that the acquisition of, or right to acquire, by a single investor or affiliated investor group, as little as 20% of the common stock (or securities convertible into or exercisable for common stock) or voting power of an issuer could constitute a change of control. In addition, the staff of Nasdaq has advised Gemphire that Nasdaq deems the merger to be a "change of control". Accordingly, in order to ensure compliance with Nasdaq Listing Rule 5635(b), Gemphire must obtain the approval of Gemphire Stockholders for the potential change in control of Gemphire resulting from the merger.

The terms of, reasons for and other aspects of the Merger Agreement, the merger, the issuance of Gemphire common stock pursuant to the Merger Agreement and the resulting change of control are described in detail in the other sections in this proxy statement/prospectus/information statement.

***Vote Required***

The affirmative vote of the holders of a majority of the shares of Gemphire common stock present in person or represented by proxy at the Gemphire annual meeting and entitled to vote on the matter is required for approval of Proposal No. 1. Abstentions will have the same effect as votes "AGAINST" this Proposal.

***Recommendation of Gemphire Board***

**THE GEMPHIRE BOARD RECOMMENDS THAT GEMPHIRE STOCKHOLDERS VOTE "FOR" PROPOSAL NO. 1 TO APPROVE THE ISSUANCE OF GEMPHIRE COMMON STOCK**

**PURSUANT TO THE MERGER AGREEMENT AND THE CHANGE OF CONTROL OF GEMPHIRE RESULTING FROM THE MERGER. PROPOSAL NO. 1 IS CONDITIONED UPON THE APPROVAL OF PROPOSAL NO. 2, AND THE MERGER CANNOT BE CONSUMMATED WITHOUT THE APPROVAL OF PROPOSAL NOS. 1 AND 2.**

**Proposal No. 2: Approval of an Amendment to the Gemphire Certificate of Incorporation Effecting the Gemphire Reverse Stock Split**

***General***

At the Gemphire annual meeting, Gemphire Stockholders will be asked to approve an amendment to the Gemphire Certificate of Incorporation effecting the Gemphire Reverse Stock Split. Upon the effectiveness of the amendment to the Gemphire Certificate of Incorporation effecting the Gemphire Reverse Stock Split (the "split effective time"), the issued shares of Gemphire common stock immediately prior to the split effective time will be reclassified into a smaller number of shares within a range, as determined by the Gemphire Board, such that a stockholder of Gemphire will own one new share of Gemphire common stock for every 15 to 25 (or any number in between) shares of Gemphire common stock held by that stockholder immediately prior to the split effective time.

If Proposal Nos. 1 and 2 are approved, the Gemphire Reverse Stock Split will become effective immediately prior to the Closing of the merger. The Gemphire Board may determine to effect the Gemphire Reverse Stock Split, if it is approved by the stockholders, even if Proposal No. 1 is not approved and the merger is not consummated.

The form of the amendment to the Gemphire Certificate of Incorporation to effect the Gemphire Reverse Stock Split is attached to this proxy statement/prospectus/information statement as *Annex B.*

***Purpose***

The Gemphire Board approved the proposal approving the amendment to the Gemphire Certificate of Incorporation effecting the Gemphire Reverse Stock Split for the following reasons:

- the Gemphire Board believes effecting the Gemphire Reverse Stock Split may be an effective means of avoiding a delisting of Gemphire common stock from Nasdaq in the future;
- the Gemphire Reverse Stock Split is required in order to make sufficient shares of Gemphire common stock available for issuance to NeuroBo Stockholders pursuant to the Merger Agreement; and
- the Gemphire Board believes a higher stock price may help generate investor interest in Gemphire and help Gemphire attract and retain employees.
- If the Gemphire Reverse Stock Split successfully increases the per share price of Gemphire common stock, the Gemphire Board believes this increase may increase trading volume in Gemphire common stock and facilitate future financings by Gemphire.

***Nasdaq Requirements for Listing on Nasdaq***

Gemphire common stock is quoted on the Nasdaq Capital Market under the symbol "GEMP." Gemphire has filed an initial listing application with Nasdaq to seek listing on the Nasdaq Capital Market upon the Closing of the merger.

According to Nasdaq Listing Rule 5110, an issuer must apply for initial inclusion following a transaction whereby the issuer combines with a non-Nasdaq entity, resulting in a change of control of the issuer and potentially allowing the non-Nasdaq entity to obtain a Nasdaq listing. Accordingly, the listing standards of Nasdaq will require Gemphire to have, among other things, a $4.00 per share

minimum bid price upon the Closing of the merger. As of November 1, 2019, the closing price of Gemphire common stock was $0.36. Effecting the Gemphire Reverse Stock Split is a condition to the Closing of the merger.

To the extent the merger is not completed, the principal reason for the Gemphire Reverse Stock Split will be the continued listing on the Nasdaq Capital Market by increasing the per share trading price of Gemphire common stock in order to help ensure a share price high enough to continue to satisfy the $1.00 per share minimum bid price requirement, although there can be no assurance that the trading price of Gemphire common stock would be maintained at such level or that Gemphire will be able to maintain the listing of Gemphire common stock on the Nasdaq Capital Market.

***Potential Increased Investor Interest***

On November 1, 2019, Gemphire common stock closed at $0.36 per share. An investment in Gemphire common stock may not appeal to brokerage firms that are reluctant to recommend lower priced securities to their clients. Investors may also be dissuaded from purchasing lower priced stocks because the brokerage commissions, as a percentage of the total transaction, tend to be higher for such stocks. Moreover, the analysts at many brokerage firms do not monitor the trading activity or otherwise provide coverage of lower priced stocks. Also, the Gemphire Board believes that most investment funds are reluctant to invest in lower priced stocks. Accordingly, the Gemphire Board believes that a higher stock price may generate investor interest in Gemphire common stock.

***Principal Effects of the Gemphire Reverse Stock Split***

If approved and implemented, the principal effects of the Gemphire Reverse Stock Split would include the following, all of which have been considered by the Gemphire Board in approving the Gemphire Reverse Stock Split:

- The number of outstanding shares of Gemphire common stock will be reduced and each Gemphire Stockholder will own fewer shares than they currently own.
- The number of shares of Gemphire common stock reserved and available for issuance under Gemphire's equity-based compensation plans and the number of shares of Gemphire common stock issuable upon exercise of outstanding options and warrants will be reduced proportionately based on the reverse stock split ratio selected by the Gemphire Board, and the exercise price of all outstanding options and warrants will be increased proportionately.
- Except for adjustments that may result from the treatment of fractional shares resulting from the Gemphire Reverse Stock Split, which are explained below under the section entitled *"—Fractional Shares,"* each stockholder will hold the same percentage of Gemphire common stock immediately following the Gemphire Reverse Stock Split as the stockholder held immediately prior to the Gemphire Reverse Stock Split.
- The voting rights, rights to dividends and distributions and other rights of Gemphire common stock will not be changed as a result of the Gemphire Reverse Stock Split.
- The Gemphire Reverse Stock Split will not affect the number of authorized shares of Gemphire common stock or preferred stock which will continue to be authorized pursuant to the Gemphire Certificate of Incorporation, or the par value of Gemphire common stock or preferred stock. As described further below, because the number of authorized shares will not be reduced proportionately, the Gemphire Reverse Stock Split will increase the Gemphire Board's ability to issue authorized and unissued shares without further stockholder action.
- The Gemphire Reverse Stock Split will not affect Gemphire continuing to be subject to the periodic reporting requirements of the Exchange Act. The Gemphire Reverse Stock Split is not

intended as, and will not have the effect of, a "going private transaction" covered by Rule 13e-3 under the Exchange Act.

There are risks associated with the Gemphire Reverse Stock Split, all of which have been considered by the Gemphire Board in recommending to Gemphire Stockholders the Gemphire Reverse Stock Split for approval.

One of the effects of the Gemphire Reverse Stock Split will be to effectively increase the proportion of authorized shares which are unissued relative to those which are issued. This could result in the Gemphire Board being able to issue more shares without further stockholder approval. For example, before the Gemphire Reverse Stock Split, Gemphire's authorized but unissued shares immediately prior to the Closing of the merger would be approximately 84.1 million compared to shares issued of approximately 15.9 million. If Gemphire effects the Gemphire Reverse Stock Split using a 1: 20 ratio (the midpoint of the range of the Gemphire Reverse Stock Split), its authorized but unissued shares immediately prior to the Closing of the merger would be approximately 99.2 million compared to shares issued of approximately 0.8 million. With respect to authorized but unissued shares, Gemphire could use shares that are available for issuance in future equity financing transactions, which could result in additional dilution to Gemphire stockholders, or to oppose a hostile takeover attempt or delay or prevent future changes in control or changes in or removal of management, including transactions that are favored by a majority of the stockholders or in which the stockholders might otherwise receive a premium for their shares over then-current market prices or benefit in some other manner. Gemphire currently has no plans to issue shares, other than in connection with the merger, and to satisfy obligations under the Gemphire Warrants and employee stock options from time to time as these warrants and options are exercised.

Gemphire cannot predict whether the Gemphire Reverse Stock Split will increase the market price for Gemphire common stock. The history of similar stock split combinations for companies in like circumstances is varied. There is no assurance that:

- the market price per share of Gemphire common stock after the Gemphire Reverse Stock Split will rise in proportion to the reduction in the number of shares of Gemphire common stock outstanding before the Gemphire Reverse Stock Split;
- the Gemphire Reverse Stock Split will result in a per share price that will attract brokers and investors who do not trade in lower priced stocks;
- the Gemphire Reverse Stock Split will result in a per share price that will increase the ability of Gemphire to attract and retain employees;
- the bid price per share will either exceed or remain in excess of the $1.00 minimum bid price as required by Nasdaq for continued listing; or
- that Gemphire will otherwise meet the requirements of Nasdaq for initial listing on the Nasdaq Capital Market, including the $4.00 minimum bid price upon the Closing of the merger.

The market price of Gemphire common stock will also be based on performance of Gemphire and other factors, some of which are unrelated to the number of shares outstanding. If the Gemphire Reverse Stock Split is effected and the market price of Gemphire common stock declines, the percentage decline as an absolute number and as a percentage of the overall market capitalization of Gemphire may be greater than would occur in the absence of a reverse stock split. Furthermore, the liquidity of Gemphire common stock could be adversely affected by the reduced number of shares that would be outstanding after the Gemphire Reverse Stock Split. In addition, there can be no assurance that Gemphire common stock will not be delisted due to a failure to meet other listing requirements even if the market price per share of Gemphire common stock post Gemphire Reverse Stock Split remains in excess of the minimum bid price requirement.

The anticipated resulting increase in the per share price of Gemphire common stock due to the Gemphire Reverse Stock Split is expected to encourage greater interest in its common stock by brokers and investors and possibly promote greater liquidity for its stockholders. However, there is no assurance that such greater interest will occur.

Since the Gemphire Reverse Stock Split will decrease the number of shares held by Gemphire Stockholders, the Gemphire Reverse Stock Split may increase the number of stockholders who hold less than a "round lot," or 100 shares. Typically, the transaction costs to stockholders selling "odd lots" are higher on a per share basis. Consequently, the reverse stock split could increase the transaction costs to existing stockholders in the event they wish to sell all or a portion of their shares.

***Procedure for Effecting the Gemphire Reverse Stock Split and Exchange of Stock Certificates***

If Gemphire Stockholders approve the amendment to the Gemphire Certificate of Incorporation effecting the Gemphire Reverse Stock Split, and if the Gemphire Board still believes that a reverse stock split is in the best interests of Gemphire and Gemphire Stockholders, Gemphire will file the amendment to the Gemphire Certificate of Incorporation with the Secretary of State of the State of Delaware at such time as the Gemphire Board has determined to be the appropriate split effective time. The Gemphire Board may delay effecting the Gemphire Reverse Stock Split without resoliciting stockholder approval. Beginning at the split effective time, each certificate representing pre-split shares will be deemed for all corporate purposes to evidence ownership of post-split shares.

As soon as practicable after the split effective time, Gemphire Stockholders will be notified that the Gemphire Reverse Stock Split has been effected. Gemphire expects that the Gemphire transfer agent will act as exchange agent for purposes of implementing the exchange of stock certificates, if any. Holders of Gemphire common stock holding all of their shares electronically in book-entry form with Gemphire's transfer agent do not need to take any action (the exchange will be automatic) to receive post-split shares. Holders of pre-split shares held in certificated form will be asked to surrender to the exchange agent certificates representing pre-split shares in exchange for certificates representing post-split shares in accordance with the procedures to be set forth in a letter of transmittal to be sent by Gemphire. Upon receipt of the holder's pre-split certificate(s) and the properly completed and executed letter of transmittal, the holder will be issued the appropriate number of shares of common stock electronically in book-entry form under the Direct Registration System (the "DRS"). No new shares in book-entry form will be reflected until the holder surrenders the holder's outstanding pre-reverse stock split certificate(s), together with the properly completed and executed letter of transmittal, to the exchange agent. In the event that the Gemphire Name Change under Proposal No. 3 is approved by Gemphire Stockholders, the certificates, if any, reflecting the post-split shares will also reflect the Gemphire Name Change. Any pre-split shares submitted for transfer, whether pursuant to a sale or other disposition, or otherwise, will automatically be exchanged for post-split shares. **Gemphire Stockholders should not destroy any stock certificate(s) and should not submit any certificate(s) unless and until requested to do so.**

***Fractional Shares***

No fractional shares will be issued in connection with the Gemphire Reverse Stock Split. Gemphire Stockholders of record who otherwise would be entitled to receive fractional shares because they hold a number of pre-split shares not evenly divisible by the number of pre-split shares to be reclassified into one post-split share, will be entitled to a cash payment in lieu thereof at a price equal to the fraction to which the stockholder would otherwise be entitled multiplied by the closing price of the common stock on Nasdaq on the date immediately preceding the split effective time; provided, however, holders of certificated shares must first surrender to the exchange agent the certificates representing such pre-split shares. The ownership of a fractional interest will not give the holder thereof any voting, dividend, or other rights except to receive payment therefor as described herein.

By approving the amendment to the Gemphire Certificate of Incorporation effecting the Gemphire Reverse Stock Split, Gemphire Stockholders will be approving the combination of 15 to 25 (or any number in between) outstanding shares of Gemphire common stock, as determined by the Gemphire Board, into one share of Gemphire common stock.

Gemphire Stockholders should be aware that, under the escheat laws of the various jurisdictions where Gemphire Stockholders reside, where Gemphire is domiciled, and where the funds will be deposited, sums due for fractional interests that are not timely claimed after the effective date of the Gemphire Reverse Stock Split may be required to be paid to the designated agent for each such jurisdiction, unless correspondence has been received by Gemphire or the exchange agent concerning ownership of such funds within the time permitted in such jurisdiction. Thereafter, Gemphire Stockholders otherwise entitled to receive such funds will have to seek to obtain them directly from the state to which they were paid.

***Accounting Consequences***

The par value per share of Gemphire common stock will remain unchanged at $0.001 per share after the Gemphire Reverse Stock Split. As a result, at the split effective time of the Gemphire Reverse Stock Split, the stated capital on Gemphire's balance sheet attributable to Gemphire common stock will be reduced proportionately based on the reverse stock split ratio, from its present amount, and the additional paid-in capital account will be increased for the amount by which the stated capital is reduced. After the Gemphire Reverse Stock Split (and disregarding the impact of shares of Gemphire common stock issued in the merger), net income or loss per share, and other per share amounts will be increased because there will be fewer shares of common stock outstanding. In future financial statements, net loss per share and other per share amounts for periods ending before the Gemphire Reverse Stock Split will be restated to give retroactive effect to the Gemphire Reverse Stock Split.

***Potential Anti-Takeover Effect***

Although the increased proportion of unissued authorized shares to issued shares could, under certain circumstances, have an anti-takeover effect, for example, by permitting issuances that would dilute the stock ownership of a person seeking to effect a change in the composition of the Gemphire Board or contemplating a tender offer or other transaction for the combination of Gemphire with another company, the Gemphire Reverse Stock Split proposal is not being proposed in response to any effort of which Gemphire is aware to accumulate shares of Gemphire common stock or obtain control of Gemphire, other than in connection with the merger, nor is it part of a plan by management to recommend a series of similar amendments to the Gemphire Board and Gemphire Stockholders. Other than the proposals being submitted to Gemphire Stockholders for their consideration at the Gemphire annual meeting, the Gemphire Board does not currently contemplate recommending the adoption of any other actions that could be construed to affect the ability of third parties to take over or effect a change control of Gemphire. For more information, please see the section entitled "*Risk Factors—Risks Related to Gemphire Common Stock*", and "*Description of Gemphire's Capital Stock—Anti-Takeover Provisions*".

***Material U.S. Federal Income Tax Consequences of the Gemphire Reverse Stock Split***

The following discussion is a summary of the material U.S. federal income tax consequences of the Gemphire Reverse Stock Split to Gemphire U.S. Holders (which, for purposes of this discussion, has the same meaning as in "*Agreements Related to the Merger—Contingent Value Rights Agreement—Material U.S. Federal Income Tax Consequences of the Receipt of CVRs*"), but does not purport to be a complete analysis of all potential tax consequences that may be relevant to Gemphire U.S. Holders. The effects of other U.S. federal tax laws, such as estate and gift tax laws, and any applicable state, local or

non-U.S. tax laws are not discussed. This discussion is based on the Code, Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the IRS, in each case in effect as of the date hereof. These authorities may change or be subject to differing interpretations. Any such change or differing interpretation may be applied retroactively in a manner that could adversely affect a Gemphire U.S. Holder. Gemphire has not sought and does not intend to seek any rulings from the IRS regarding the matters discussed below. There can be no assurance the IRS or a court will not take a position contrary to that discussed below regarding the tax consequences of the Gemphire Reverse Stock Split.

This discussion is limited to Gemphire U.S. Holders that hold Gemphire common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all U.S. federal income tax consequences that may be relevant to a Gemphire U.S. Holder's particular circumstances, including the impact of the alternative minimum tax or the Medicare contribution tax on net investment income. In addition, it does not address consequences relevant to Gemphire U.S. Holders subject to special rules, including, without limitation:

- U.S. expatriates and former citizens or long-term residents of the United States;
- Gemphire U.S. Holders whose functional currency is not the U.S. dollar;
- persons holding Gemphire common stock as part of a hedge, straddle or other risk reduction strategy or as part of a conversion transaction or other integrated investment;
- banks, insurance companies, and other financial institutions;
- real estate investment trusts or regulated investment companies;
- brokers, dealers or traders in securities;
- persons for whom Gemphire common stock constitutes "qualified small business stock" within the meaning of Section 1202 of the Code;
- "controlled foreign corporations," "passive foreign investment companies," and corporations that accumulate earnings to avoid U.S. federal income tax;
- S corporations, partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes (and investors therein);
- tax-exempt organizations or governmental organizations;
- persons subject to special tax accounting rules as a result of any item of gross income with respect to Gemphire common stock being taken into account in an "applicable financial statement" (as defined in the Code);
- persons deemed to sell Gemphire common stock under the constructive sale provisions of the Code;
- persons who hold or received Gemphire common stock pursuant to the exercise of any employee stock option or otherwise as compensation; and
- tax-qualified retirement plans.

If an entity treated as a partnership for U.S. federal income tax purposes holds Gemphire common stock, the tax treatment of a partner in the partnership will depend on the status of the partner, the activities of the partnership and certain determinations made at the partner level. Accordingly, partnerships holding Gemphire common stock and the partners in such partnerships should consult their tax advisors regarding the U.S. federal income tax consequences to them.

**THIS DISCUSSION IS FOR INFORMATION PURPOSES ONLY AND IS NOT TAX ADVICE. HOLDERS SHOULD CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES OF THE GEMPHIRE REVERSE STOCK SPLIT ARISING UNDER THE U.S. FEDERAL ESTATE OR GIFT TAX LAWS OR UNDER THE LAWS OF ANY STATE, LOCAL OR NON-U.S. TAXING JURISDICTION OR UNDER ANY APPLICABLE INCOME TAX TREATY.**

***Gemphire Reverse Stock Split***

The Gemphire Reverse Stock Split should constitute a "recapitalization" for U.S. federal income tax purposes. As a result, a Gemphire U.S. Holder generally should not recognize gain or loss upon the Gemphire Reverse Stock Split, except with respect to cash received in lieu of a fractional share of Gemphire common stock, as discussed below. A Gemphire U.S. Holder's aggregate tax basis in the shares of Gemphire common stock received pursuant to the Gemphire Reverse Stock Split should equal the aggregate tax basis of the shares of Gemphire common stock surrendered (excluding any portion of such basis that is allocated to any fractional share of Gemphire common stock), and such Gemphire U.S. Holder's holding period in the shares of Gemphire common stock received should include the holding period in the shares of Gemphire common stock surrendered. Treasury Regulations provide detailed rules for allocating the tax basis and holding period of the shares of Gemphire common stock surrendered to the shares of Gemphire common stock received pursuant to the Gemphire Reverse Stock Split. Holders of shares of Gemphire common stock acquired on different dates and at different prices should consult their tax advisors regarding the allocation of the tax basis and holding period of such shares.

A Gemphire U.S. Holder that receives cash in lieu of a fractional share of Gemphire common stock pursuant to the Gemphire Reverse Stock Split should recognize capital gain or loss in an amount equal to the difference between the amount of cash received and the Gemphire U.S. Holder's tax basis in the shares of Gemphire common stock surrendered that is allocated to such fractional share of Gemphire common stock. Such capital gain or loss should be long-term capital gain or loss if the Gemphire U.S. Holder's holding period for Gemphire common stock surrendered exceeded one year at the split effective time of the Gemphire Reverse Stock Split.

This discussion assumes that the distribution of CVRs to Gemphire U.S. Holders will be treated for U.S. federal income tax purposes as a transaction that is separate and distinct from the Gemphire Reverse Stock Split, however, it is possible that the IRS or a court could determine that the Gemphire Reverse Stock Split and the receipt of CVRs constitute a single "recapitalization" for U.S. federal income tax purposes. For a discussion of such treatment, please see the section entitled *"Agreements Related to the Merger—Contingent Value Rights Agreement—Material U.S. Federal Income Tax Consequences of the Receipt of CVRs—Alternative Treatment of the Receipt of CVRs and the Gemphire Reverse Stock Split as a Single Recapitalization."*

***Information Reporting and Backup Withholding***

A Gemphire U.S. Holder may be subject to information reporting and backup withholding when such holder receives cash in lieu of fractional shares of Gemphire common stock in the Gemphire Reverse Stock Split. Certain Gemphire U.S. Holders are exempt from backup withholding, including corporations and certain tax-exempt organizations. A Gemphire U.S. Holder will be subject to backup withholding if such holder is not otherwise exempt and:

- the holder fails to furnish the holder's taxpayer identification number, which for an individual is ordinarily his or her social security number;
- the holder furnishes an incorrect taxpayer identification number;

- the applicable withholding agent is notified by the IRS that the holder previously failed to properly report payments of interest or dividends; or
- the holder fails to certify under penalties of perjury that the holder has furnished a correct taxpayer identification number and that the IRS has not notified the holder that the holder is subject to backup withholding.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be allowed as a refund or a credit against a Gemphire U.S. Holder's U.S. federal income tax liability, provided the required information is timely furnished to the IRS. Gemphire U.S. Holders should consult their tax advisors regarding their qualification for an exemption from backup withholding and the procedures for obtaining such an exemption.

***Vote Required***

The affirmative vote of holders of a majority of the shares of Gemphire common stock outstanding on the Record Date for the Gemphire annual meeting and entitled to vote on the matter is required for approval of Proposal No. 2. Abstentions will have the same effect as votes "AGAINST" this Proposal.

***Recommendation of Gemphire Board***

**THE GEMPHIRE BOARD RECOMMENDS THAT GEMPHIRE STOCKHOLDERS VOTE "FOR" PROPOSAL NO. 2 TO APPROVE AN AMENDMENT TO THE GEMPHIRE CERTIFICATE OF INCORPORATION EFFECTING THE GEMPHIRE REVERSE STOCK SPLIT. THE APPROVAL OF PROPOSAL NO. 2 IS REQUIRED TO CONSUMMATE THE MERGER.**

**Proposal No. 3: Approval of Gemphire Name Change**

At the Gemphire annual meeting, Gemphire Stockholders will be asked to approve the amendment to the Gemphire Certificate of Incorporation to change the name of Gemphire from "Gemphire Therapeutics Inc." to "NeuroBo Pharmaceuticals, Inc.," by filing an amendment to the Gemphire Certificate of Incorporation at the Closing of the merger. A copy of the proposed amendment to the Gemphire Certificate of Incorporation is attached to this proxy statement/prospectus/information statement as *Annex C*. The primary reason for the corporate name change is that management believes this will allow for brand recognition of NeuroBo's products and programs following the consummation of the merger. Gemphire's management believes that the current name will no longer accurately reflect the business of Gemphire and the mission of Gemphire subsequent to the consummation of the merger.

***Vote Required***

The affirmative vote of holders of a majority of the shares of Gemphire common stock outstanding on the Record Date for the Gemphire annual meeting and entitled to vote on the matter is required for approval of Proposal No. 3. Abstentions will have the same effect as votes "AGAINST" this Proposal.

***Recommendation of Gemphire Board***

**THE GEMPHIRE BOARD RECOMMENDS THAT GEMPHIRE STOCKHOLDERS VOTE "FOR" PROPOSAL NO. 3 TO APPROVE THE GEMPHIRE NAME CHANGE. PROPOSAL NO. 3 IS CONDITIONED UPON THE APPROVAL OF EACH OF PROPOSAL NOS. 1 AND 2.**

**Proposal No. 4: Approval of the Adoption of the Gemphire 2019 Plan**

***Overview***

At the Gemphire annual meeting, Gemphire Stockholders will be asked to approve and adopt the Gemphire 2019 Plan and the material terms thereunder. The Gemphire Board intends to approve the Gemphire 2019 Plan prior to the Gemphire annual meeting, subject to stockholder approval at the Gemphire annual meeting. The Gemphire 2019 Plan will become effective on the day prior to the Closing date of the merger, subject to consummation of the merger, provided stockholder approval has been obtained prior to such date.

The Gemphire 2019 Plan is described in more detail below. A copy of the Gemphire 2019 Plan is attached to this proxy statement/prospectus/information statement as *Annex D.*

Unless otherwise noted, all share numbers in this Proposal No. 4 do not reflect the Gemphire Reverse Stock Split which will be applied to the share numbers in the Gemphire 2019 Plan.

**The Gemphire 2019 Plan**

**General**

At the Gemphire annual meeting, Gemphire Stockholders will be asked to approve and adopt the Gemphire 2019 Plan and the material terms thereunder. The Gemphire Board intends to approve the Gemphire 2019 Plan prior to the Gemphire annual meeting, subject to stockholder approval at the Gemphire annual meeting. The Gemphire 2019 Plan will become effective on the day prior to the closing date of the merger, subject to consummation of the merger, provided stockholder approval has been obtained prior to such date.

If this Proposal No. 4 is approved:

- 75,000,000 (which would range from 3,000,000 to 5,000,000, giving effect to the Gemphire Reverse Stock Split) new shares of Gemphire common stock will be reserved for issuance under the Gemphire 2019 Plan;
- the Gemphire 2015 Plan will be terminated; and
- up to 839,000 additional shares may be issued if awards outstanding under the NeuroBo 2018 Plan are cancelled or expire on or after the date of the Gemphire annual meeting.

As of September 30, 2019, a total of 581,100 shares of Gemphire common stock remain available for issuance under the Gemphire 2015 Plan, and options to purchase a total of 2,546,268 shares of Gemphire common stock remain outstanding and 607,000 shares of restricted stock have been granted under the Gemphire 2015 Plan or the Inducement Plan.

The following table shows Gemphire's 3-year burn rate history (excluding new hire awards since determined primarily by competitive market conditions):

| | FY 2018 | FY 2017 | FY 2016 |
|---|---|---|---|
| **Adjusted Gross Burn Rate as a % of Outstanding Shares(1)** | 3.38% | 1.16% | 31.43% |
| **Adjusted Net Burn Rate as a % of Outstanding Shares(2)** | 0.15% | 1.13% | 29.99% |

(1) Adjusted gross burn rate is calculated as the result of (a) shares subject to awards granted during the applicable fiscal year (excluding new hire awards), divided by (b) the weighted average common shares outstanding during the applicable fiscal year.

(2) Adjusted net burn rate is calculated as the result of (a) shares subject to awards granted during the applicable fiscal year (excluding new hire awards), minus shares subject to awards that were

forfeited, canceled or terminated (other than upon exercise) during the applicable fiscal year, divided by (b) the weighted average common shares outstanding during the applicable fiscal year.

The Gemphire 2019 Plan includes the following provisions:

- No Liberal Share Recycling: Shares that are withheld to satisfy any tax withholding obligation related to any stock award or for payment of the exercise price or purchase price of any stock award under the Gemphire 2019 Plan will not again become available for issuance under the Gemphire 2019 Plan.

- No Discounted Options or Stock Appreciation Rights: Stock options and stock appreciation rights may not be granted with exercise prices lower than the fair market value of the underlying shares on the grant date except to replace equity awards due to a corporate transaction.

- No Repricing without Stockholder Approval: Other than in connection with corporate reorganizations or restructurings, at any time when the exercise price of a stock option or strike price of a stock appreciation right is above the fair market value of a share, Gemphire will not, without stockholder approval, reduce the exercise price of such stock option or strike price of such stock appreciation right and will not exchange such stock option or stock appreciation right for a new award with a lower (or no) purchase price or for cash.

- No Transferability: Equity awards generally may not be transferred, except by will or the laws of descent and distribution, unless approved by the Gemphire Compensation Committee.

- Limits on Director Grants: The Gemphire 2019 Plan limits the number of shares to be granted to any non-employee director in any calendar year to an aggregate grant date fair value of $500,000 except for grants made pursuant to an election by a non-employee director to receive a grant of equity in lieu of cash for any cash fees to be received for service on the Gemphire Board or any committee thereof or in connection with a non-employee director initially joining the Gemphire Board.

**Reasons for Approval of the Gemphire 2019 Plan**

The effective use of stock-based long-term incentive compensation is vital to Gemphire's and the combined organization's ability to achieve strong performance in the future and following the consummation of the merger. Gemphire's future success depends, in large part, upon its ability to maintain a competitive position in attracting, retaining and motivating key personnel and the Gemphire 2019 Plan will permit management of the combined company to continue to provide long-term, equity-based incentives to present and future key employees, consultants and directors. The Gemphire Board believes that the number of shares currently remaining available for issuance pursuant to future awards under the Gemphire 2015 Plan (581,100 as of September 30, 2019) may not be sufficient for future granting needs.

The Gemphire 2019 Plan is being submitted to you for approval at the Gemphire annual meeting in order to ensure favorable federal income tax treatment for grants of incentive stock options under Section 422 of the Code. Approval by Gemphire's stockholders of the Gemphire 2019 Plan is also required by the listing rules of the Nasdaq Stock Market.

The Gemphire 2019 Plan is described in more detail below. A copy of the Gemphire 2019 Plan is attached to this proxy statement/prospectus/information statement as *Annex D*.

**Summary of Material Features of the Gemphire 2019 Plan**.

**Eligibility.** The Gemphire 2019 Plan allows the Gemphire Board, under the direction of the Gemphire Compensation Committee, to make grants of stock options, restricted and unrestricted stock awards and other stock-based awards to employees, consultants and directors who, in the opinion of the

Gemphire Compensation Committee, are in a position to make a significant contribution to the combined organization's long-term success. All employees, directors and consultants of the combined organization and its affiliates will be eligible to participate in the Plan. There are expected to be approximately 20 employees, directors and consultants of the combined company eligible to participate in the Plan upon the Closing of the merger.

**Shares Available for Issuance.** The Gemphire 2019 Plan provides for the issuance of up to shares of Gemphire's common stock plus a number of additional shares to be issued if awards outstanding under the Gemphire 2015 Plan are cancelled or expire on or after the date of the Gemphire annual meeting. Generally, shares of common stock reserved for awards under the Gemphire 2019 Plan that lapse or are canceled (other than by exercise) will be added back to the share reserve available for future awards. However, shares of common stock tendered in payment for an award or shares of common stock withheld for taxes are not available again for future awards. In addition, shares repurchased by Gemphire with the proceeds of the option exercise price may not be reissued under the Gemphire 2019 Plan.

In addition, the number of shares of Gemphire common stock which may be issued pursuant to the Gemphire 2019 Plan will automatically increase on the first day of each fiscal year beginning in fiscal year 2020 and ending on the second day of fiscal year 2029 by an amount equal to the lesser of (i) 4% of the number of outstanding shares of Gemphire Common Stock on such date and (ii) an amount determined by the Gemphire Board.

**Stock Options.** Stock options granted under the Gemphire 2019 Plan may either be incentive stock options, which are intended to satisfy the requirements of Section 422 of the Code, or non-qualified stock options, which are not intended to meet those requirements. Incentive stock options may be granted to employees of the Company and its affiliates. Non-qualified options may be granted to employees, directors and consultants of the Company and its affiliates and the term of the option may not be longer than ten years. The exercise price of a stock option may not be less than 100% of the fair market value of the Gemphire common stock on the date of grant. If an incentive stock option is granted to an individual who owns more than 10% of the combined voting power of all classes of Gemphire's capital stock, the exercise price may not be less than 110% of the fair market value of Gemphire common stock on the date of grant and the term of the option may not be longer than five years.

Award agreements for stock options include rules for exercise of the stock options after termination of service. Options may not be exercised unless they are vested, and no option may be exercised after the end of the term set forth in the award agreement. Generally, stock options will be exercisable for three months after termination of service for any reason other than death or total and permanent disability, and for 12 months after termination of service on account of death or total and permanent disability but will not be exercisable if the termination of service was due to cause.

**Restricted Stock.** Restricted stock is common stock that is subject to restrictions, including a prohibition against transfer and a substantial risk of forfeiture, until the end of a "restricted period" during which the grantee must satisfy certain time or performance-based vesting conditions. If the grantee does not satisfy the vesting conditions by the end of the restricted period, the restricted stock is forfeited.

During the restricted period, the holder of restricted stock has the rights and privileges of a regular stockholder, except that the restrictions set forth in the applicable award agreement apply. For example, the holder of restricted stock may vote the restricted shares; but he or she may not sell the shares until the restrictions are lifted.

**Other Stock-Based Awards.** The Gemphire 2019 Plan also authorizes the grant of other types of stock-based compensation including, but not limited to stock appreciation rights, phantom stock awards,

and stock unit awards. The Gemphire Board or an authorized committee may award such stock-based awards subject to such conditions and restrictions as it may determine. These conditions and restrictions may include continued employment with the combined organization through a specified restricted period or achievement of one or more performance goals.

**Restricted Stock Units.** Restricted stock units are phantom shares that vest in accordance with terms and conditions established by the Gemphire Compensation Committee and when the applicable restrictions lapse, the grantee shall be entitled to receive a payout in cash, shares or a combination thereof based on the number of restricted stock units as specified in the award agreement. Dividend equivalents may accrue but shall not be paid prior to, and only to the extent that, the restricted stock unit award vests.

**Plan Administration.** In accordance with the terms of the Gemphire 2019 Plan, the Gemphire Board has authorized the Gemphire Compensation Committee to administer the Gemphire 2019 Plan. The Gemphire Compensation Committee may delegate part of its authority and powers under the Gemphire 2019 Plan to one or more of its directors and/or officers, but only the Gemphire Compensation Committee can make awards to participants who are subject to the reporting and other requirements of Section 16 of the Exchange Act. In accordance with the provisions of the Gemphire 2019 Plan, the Gemphire Compensation Committee will determine the terms of awards, including:

- which employees, directors and consultants will be granted awards;
- the number of shares subject to each award;
- the vesting provisions of each award;
- the termination or cancellation provisions applicable to awards; and
- all other terms and conditions upon which each award may be granted in accordance with the Gemphire 2019 Plan.

In addition, the Gemphire Compensation Committee may, in its discretion, amend any term or condition of an outstanding award provided (i) such term or condition as amended is permitted by the Gemphire 2019 Plan, and (ii) any such amendment shall be made only with the consent of the participant to whom such award was made, if the amendment is adverse to the participant unless such amendment is required by applicable law or necessary to preserve the economic value of such award; and provided, further, that, without the prior approval of Gemphire's stockholders, options and stock appreciation rights will not be repriced, replaced or regranted through cancellation or by lowering the exercise price of a previously granted award.

**Stock Dividends and Stock Splits.** If the Gemphire common stock shall be subdivided or combined into a greater or smaller number of shares or if the combined organization issues any shares of common stock as a stock dividend, the number of shares of Gemphire common stock deliverable upon exercise of an option or upon vesting of an award shall be appropriately increased or decreased proportionately, and appropriate adjustments shall be made in the exercise price per share of stock options or purchase price, if any, and performance goals applicable to performance-based awards, if any, to reflect such subdivision, combination or stock dividend.

**Corporate Transactions.** Upon a merger or other reorganization event, the Gemphire Board may, in its sole discretion, take any one or more of the following actions pursuant to the Gemphire 2019 Plan, as to some or all outstanding awards:

- provide that all outstanding options shall be assumed or substituted by the successor corporation;

- upon written notice to a participant provide that the participant's unexercised options will terminate immediately prior to the consummation of such transaction unless exercised by the participant;

- in the event of a merger pursuant to which holders of Gemphire common stock will receive a cash payment for each share surrendered in the merger, make or provide for a cash payment to the participants equal to the difference between the merger price times the number of shares of Gemphire common stock subject to such outstanding options, and the aggregate exercise price of all such outstanding options, in exchange for the termination of such options;

- provide that outstanding awards shall be assumed or substituted by the successor corporation, become realizable or deliverable, or restrictions applicable to an award will lapse, in whole or in part, prior to or upon the merger or reorganization event; and

- with respect to stock grants and in lieu of any of the foregoing, the Gemphire Board or an authorized committee may provide that, upon consummation of the transaction, each outstanding stock grant shall be terminated in exchange for payment of an amount equal to the consideration payable upon consummation of such transaction to a holder of the number of shares of common stock comprising such award (to the extent such stock grant is no longer subject to any forfeiture or repurchase rights then in effect or, at the discretion of the Gemphire Board or an authorized committee, all forfeiture and repurchase rights being waived upon such transaction).

**Amendment and Termination.** The Gemphire 2019 Plan may be amended by the Gemphire Stockholders. It may also be amended by the Gemphire Compensation Committee, provided that any amendment approved by the Gemphire Compensation Committee which is of a scope that requires stockholder approval as required (i) by the rules of The Nasdaq Stock Market, (ii) in order to ensure favorable federal income tax treatment for any incentive stock options under Code Section 422 or (iii) for any other reason, is subject to obtaining such stockholder approval. In addition, other than in connection with stock dividends, stock splits, recapitalizations or reorganizations, at any time when the exercise price of a stock option is above the fair market value of a share, the Gemphire Compensation Committee may not without stockholder approval reduce the exercise price or cancel any outstanding option in exchange for a replacement option having a lower exercise price, or for any other equity award or for cash. In addition, the Gemphire Compensation Committee may not take any other action that is considered a direct or indirect "repricing" for purposes of the stockholder approval rules of the applicable securities exchange or inter-dealer quotation system on which the Gemphire common stock is listed, including any other action that is treated as a repricing under generally accepted accounting principles. However, no such action may adversely affect any rights under any outstanding award without the holder's consent unless such amendment is required by applicable law or necessary to preserve the economic value of such award.

**Duration of Plan.** The Gemphire 2019 Plan will expire by its terms on August 29, 2029.

**Federal Income Tax Considerations**

The material federal income tax consequences of the issuance and exercise of stock options and other awards under the Gemphire 2019 Plan, based on the current provisions of the Code and regulations, are as follows. Changes to these laws could alter the tax consequences described below. This summary assumes that all awards granted under the Gemphire 2019 Plan are exempt from or comply with, the rules under Section 409A of the Code related to nonqualified deferred compensation.

**Incentive Stock Options:** Incentive stock options are intended to qualify for treatment under Section 422 of the Code. An incentive stock option does not result in taxable income to the optionee or deduction to Gemphire at the time it is granted or exercised, provided that no disposition is made by the optionee of the shares acquired pursuant to the option within two years after the date of grant of the option nor within one year after the date of issuance of shares to the optionee (referred to as the "ISO holding period"). However, the difference between the fair market value of the shares on the date of exercise and the option price will be an item of tax preference includible in "alternative minimum taxable income" of the optionee. Upon disposition of the shares after the expiration of the ISO holding period, the optionee will generally recognize long term capital gain or loss based on the difference between the disposition proceeds and the option price paid for the shares. If the shares are disposed of prior to the expiration of the ISO holding period, the optionee generally will recognize taxable compensation, and Gemphire will have a corresponding deduction, in the year of the disposition, equal to the excess of the fair market value of the shares on the date of exercise of the option over the option price. Any additional gain realized on the disposition will normally constitute capital gain. If the amount realized upon such a disqualifying disposition is less than the fair market value of the shares on the date of exercise, the amount of compensation income will be limited to the excess of the amount realized over the optionee's adjusted basis in the shares.

**Non-Qualified Options:** Options otherwise qualifying as incentive stock options, to the extent the aggregate fair market value of shares with respect to which such options are first exercisable by an individual in any calendar year exceeds $100,000, and options designated as non-qualified options will be treated as options that are not incentive stock options.

A non-qualified option ordinarily will not result in income to the optionee or deduction to Gemphire at the time of grant. The optionee will recognize compensation income at the time of exercise of such non-qualified option in an amount equal to the excess of the then value of the shares over the option price per share. Such compensation income of optionees may be subject to withholding taxes, and a deduction may then be allowable to Gemphire in an amount equal to the optionee's compensation income.

An optionee's initial basis in shares so acquired will be the amount paid on exercise of the non-qualified option plus the amount of any corresponding compensation income. Any gain or loss as a result of a subsequent disposition of the shares so acquired will be capital gain or loss.

**Stock Grants:** With respect to stock grants under the Gemphire 2019 Plan that result in the issuance of shares that are either not restricted as to transferability or not subject to a substantial risk of forfeiture, the grantee must generally recognize ordinary income equal to the fair market value of shares received. Thus, deferral of the time of issuance will generally result in the deferral of the time the grantee will be liable for income taxes with respect to such issuance. Gemphire generally will be entitled to a deduction in an amount equal to the ordinary income recognized by the grantee.

With respect to stock grants involving the issuance of shares that are restricted as to transferability and subject to a substantial risk of forfeiture, the grantee must generally recognize ordinary income equal to the fair market value of the shares received at the first time the shares become transferable or are not subject to a substantial risk of forfeiture, whichever occurs earlier. A grantee may elect to be taxed at the time of receipt of shares rather than upon lapse of restrictions on transferability or substantial risk of forfeiture, but if the grantee subsequently forfeits such shares, the grantee would not be entitled to any tax deduction, including as a capital loss, for the value of the shares on which he previously paid tax. The grantee must file such election with the Internal Revenue Service within 30 days of the receipt of the shares. Gemphire generally will be entitled to a deduction in an amount equal to the ordinary income recognized by the grantee.

**Stock Units**: The grantee recognizes no income until the issuance of the shares. At that time, the grantee must generally recognize ordinary income equal to the fair market value of the shares received. Gemphire generally will be entitled to a deduction in an amount equal to the ordinary income recognized by the grantee.

**Securities Authorized for Issuance Under Equity Compensation Plans**

The following table presents information as of December 31, 2018 with respect to compensation plans under which shares of Gemphire common stock may be issued.

| Plan Category | Number of securities to be issued upon exercise of outstanding options, warrants and rights (#) | Weighted-average exercise price of outstanding options, warrants and rights ($) | Number of securities remaining available for future issuance under equity compensation plans (#) |
|---|---|---|---|
| Equity compensation plans approved by security holders | 2,595,003 | 8.96 | 757,032(1) |
| Equity compensation plans not approved by security holders | 205,771 | 9.81 | 244,229(2) |
| Total | 2,800,774 | | 1,001,261 |

(1) Includes 300,000 shares of Gemphire common stock that remained available for purchase under the ESPP and 457,032 shares of common stock that remained available for issuance under the Gemphire 2015 Plan. The number of shares of Gemphire common stock reserved under the ESPP will automatically increase on January 1 of each calendar year through January 1, 2026 by the least of (1) 1.0% of the total number of shares of Gemphire common stock outstanding on December 31 of the preceding calendar year and (2) 75,000 shares. The number of shares of Gemphire common stock reserved under the Gemphire 2015 Plan will automatically increase on January 1 of each year, continuing through and including January 1, 2026, to an amount equal to 20% of the fully diluted shares as of December 31 of the preceding calendar year, or a lesser number of shares determined by the Gemphire Board.

(2) Includes 244,229 shares of common stock that remained available for issuance under the Gemphire Inducement Plan. For more information about the Gemphire Inducement Plan, See Note 8—

"*Stockholders' Equity*" to Gemphire's condensed financial statements appearing elsewhere in this proxy statement/prospectus/information statement.

***Vote Required***

The affirmative vote of the holders of a majority of the shares of Gemphire common stock present in person or represented by proxy at the Gemphire annual meeting and entitled to vote on the matter is required for approval of Proposal No. 4. Abstentions will have the same effect as votes "AGAINST" this Proposal. Broker non-votes will have no effect on this Proposal.

***Recommendation of Gemphire Board***

**THE GEMPHIRE BOARD RECOMMENDS THAT GEMPHIRE STOCKHOLDERS VOTE "FOR" PROPOSAL NO. 4 TO APPROVE THE GEMPHIRE 2019 PLAN. PROPOSAL NO. 4 IS CONDITIONED UPON THE APPROVAL OF EACH OF PROPOSAL NOS. 1 AND 2.**

**Proposal No. 5: Election of Directors**

At the Gemphire annual meeting, Gemphire Stockholders will vote on the election of two Class III directors to serve for a three-year term until Gemphire's 2022 annual meeting of stockholders and until their successors are elected and qualified. The Gemphire Board has unanimously nominated Pedro Lichtinger and Andrew Sassine upon the recommendation of Gemphire's nominating and governance committee for reelection to the Gemphire Board as Class III directors. The nominees have indicated that they are willing and able to continue to serve as directors. If Mr. Lichtinger or Mr. Sassine becomes unable or unwilling to serve, the holder of any proxy solicited by the Gemphire Board may be voted for the election of such other person or persons as may be designated by Gemphire's nominating and corporate governance committee.

Gemphire stockholders should understand, however, that if the merger with NeuroBo is completed, the effect of the approval of Proposal No. 5 will be limited since the composition of the Gemphire Board will be changed upon completion of the merger, in accordance with the Merger Agreement.

***Vote Required***

The Class III directors will be elected by a plurality of the votes of shares present in person or represented by proxy at the Gemphire annual meeting and entitled to vote on the election of directors.

Stockholders do not have cumulative voting rights in the election of directors. If you "WITHHOLD" authority to vote with respect to one or both of the director nominees, your vote will have no effect on the election of such nominees. Broker non-votes will have no effect on the election of nominees.

***Recommendation of Gemphire Board***

**THE GEMPHIRE BOARD RECOMMENDS THAT GEMPHIRE STOCKHOLDERS VOTE "FOR" THE ELECTION OF EACH OF PEDRO LIGHTINGER AND ANDREW SASSINE AS CLASS III DIRECTORS PURSUANT TO THIS PROPOSAL NO. 5.**

**Proposal No. 6: Ratification of Appointment of Independent Registered Public Accounting Firm**

At the Gemphire annual meeting, Gemphire Stockholders will be asked to ratify the appointment of Ernst & Young LLP as Gemphire's independent registered public accounting firm for the fiscal year ending December 31, 2019. Representatives of Ernst & Young LLP are expected to be present at the

Gemphire annual meeting and will have the opportunity to make statements if they desire to do so. Such representatives are also expected to be available to respond to appropriate questions.

Gemphire's audit committee is submitting the selection of Ernst & Young LLP to Gemphire Stockholders because Gemphire values its stockholders' views on its independent registered public accounting firm and as a matter of good corporate governance. If this proposal does not receive the affirmative approval of holders of a majority of the shares of Gemphire common stock present in person or represented by proxy at the Gemphire annual meeting and entitled to vote on the matter, Gemphire's audit committee would reconsider the appointment. Notwithstanding its selection and even if Gemphire Stockholders ratify the selection, Gemphire's audit committee, in its discretion, may appoint another independent registered public accounting firm at any time during the year if the audit committee believes that such a change would be in Gemphire's best interests and the interests of Gemphire Stockholders.

Additionally, Gemphire Stockholders should understand that if the merger with NeuroBo is completed, the effect of the approval of the ratification of the selection of Ernst & Young LLP as Gemphire's independent registered public accounting firm for the year ending December 31, 2019 will be limited since it is likely that the combined organization may decide to engage a new independent audit firm immediately or shortly after completion of the merger.

***Service Fees Paid to the Independent Registered Public Accounting Firm***

Gemphire's audit committee has considered the scope and fee arrangements for all services provided by Ernst & Young, taking into account whether the provision of non-audit-related services is compatible with maintaining Ernst & Young's independence. Gemphire retained Ernst & Young to provide services in the following categories and amounts, and the following table presents fees for professional audit services rendered by Ernst & Young for the audit of Gemphire's annual financial statements for the years ended December 31, 2018 and 2017.

| FEE CATEGORY | FISCAL YEAR 2018 | FISCAL YEAR 2017 |
|---|---|---|
| Audit fees(1) | $ 270,315 | $ 362,560 |
| Audit-related fees(2) | — | — |
| Tax fees(3) | — | $ 4,000 |
| All other fees(4) | — | — |
| Total fees | $ 270,315 | $ 366,560 |

(1) Audit fees include fees for professional services provided by Ernst & Young in connection with the audit of Gemphire's consolidated financial statements, review of Gemphire's quarterly consolidated financial statements, and related services that are typically provided in connection with registration statements.

(2) Audit-related fees include fees billed for assurance and related services reasonably related to the performance of the audit of Gemphire's financial statements. There were no audit related fees billed by Ernst & Young in 2018 or 2017.

(3) Tax fees relate to permissible services for technical tax advice related to federal and state income tax matters.

(4) There were no other fees billed by Ernst & Young for any other services in 2018 or 2017.

***Policy on Audit Committee Pre-Approval of Audit and Permissible Non-Audit Services of Independent Registered Public Accounting Firm***

Gemphire's audit committee generally pre-approves all audit and permitted non-audit and tax services provided by the independent registered public accounting firm. Pre-approval is detailed as to the particular service or category of services and is generally subject to a specific budget. The independent registered public accounting firm and management are required to periodically report to the audit committee regarding the extent of services provided by the independent registered public accounting firm in accordance with this pre-approval, and the fees for the services performed to date. Gemphire's audit committee may also pre-approve particular services on a case-by-case basis. All of the services relating to the fees described in the table above were approved by Gemphire's audit committee.

***Vote Required***

The affirmative vote of the holders of a majority of the shares of Gemphire common stock present in person or represented by proxy at the Gemphire annual meeting and entitled to vote on the matter is required for approval of Proposal No. 6. Abstentions will have the same effect as votes "AGAINST" this Proposal.

***Recommendation of Gemphire Board***

**THE GEMPHIRE BOARD RECOMMENDS A VOTE "FOR" THIS PROPOSAL NO. 6 TO RATIFY THE APPOINTMENT OF ERNST & YOUNG LLP AS GEMPHIRE'S INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 31, 2019.**

**Proposal No. 7: Approval of Possible Adjournment of the Gemphire Annual Meeting**

Gemphire is asking its stockholders to consider and vote upon a proposal to approve one or more adjournments of the Gemphire annual meeting, if necessary or appropriate, to permit further solicitation of proxies in favor of approval of Proposal Nos. 1, 2, 3 or 4.

If the number of shares of Gemphire common stock present in person or represented by proxy at the Gemphire annual meeting voting in favor of Proposal Nos. 1, 2, 3 or 4 is insufficient to approve such proposal at the time of the Gemphire annual meeting, then Gemphire may move to adjourn the Gemphire annual meeting in order to enable the Gemphire Board to solicit additional proxies in respect of such proposal. In that event, Gemphire Stockholders will be asked to vote only upon the adjournment proposal, Proposal No. 7, and not on any other proposal.

In this proposal, Gemphire is asking its stockholders to authorize the holder of any proxy solicited by the Gemphire Board to vote to adjourn the Gemphire annual meeting one or more times for the purpose of soliciting additional proxies. If Gemphire Stockholders approve this Proposal No. 7, Gemphire could adjourn the Gemphire annual meeting and any adjourned session of the Gemphire annual meeting and use the additional time to solicit additional proxies, including the solicitation of proxies from Gemphire Stockholders that previously have returned properly executed proxies or authorized a proxy by using the Internet or telephone. Among other things, approval of Proposal No. 7 could mean that, even if Gemphire has received proxies representing a sufficient number of votes against the approval of Proposal Nos. 1, 2, 3 or 4, Gemphire could adjourn the Gemphire annual meeting without a vote on such proposal and seek to obtain sufficient votes in favor of any such proposal to obtain approval of that proposal.

Gemphire currently does not intend to propose adjournment at the Gemphire annual meeting if there are sufficient votes to approve Proposal Nos. 1, 2, 3 or 4.

***Vote Required***

The affirmative vote of the holders of a majority of the shares of Gemphire common stock present in person or represented by proxy at the Gemphire annual meeting and entitled to vote on the matter is required for approval of Proposal No. 7. Abstentions will have the same effect as votes "AGAINST" this Proposal.

***Recommendation of Gemphire Board***

**THE GEMPHIRE BOARD RECOMMENDS THAT GEMPHIRE STOCKHOLDERS VOTE "FOR" PROPOSAL NO. 7 TO ADJOURN THE GEMPHIRE ANNUAL MEETING, IF NECESSARY, TO SOLICIT ADDITIONAL PROXIES IF THERE ARE NOT SUFFICIENT VOTES IN FAVOR OF PROPOSAL NOS. 1, 2, 3 or 4.**

## GEMPHIRE BUSINESS

### Overview

Gemphire is a clinical-stage biopharmaceutical company focused on developing and commercializing therapies for the treatment of dyslipidemia, a serious medical condition that increases the risk of life-threatening cardiovascular disease, focused on orphan indications, as well as nonalcoholic fatty liver disease/nonalcoholic steatohepatitis (NAFLD/NASH). Gemphire's product candidate, gemcabene, has been tested as monotherapy and in combination with statins and other drugs in more than 1,100 subjects, which Gemphire defines as healthy volunteers and patients, across 25 Phase 1 and Phase 2 clinical trials and has demonstrated promising evidence of efficacy, safety and tolerability.

In August 2018, Gemphire announced that it had completed and submitted to the FDA the results from its two year rodent carcinogenicity studies. These studies were submitted as part of a request for the FDA to remove the partial clinical hold that prevents human studies of gemcabene that are greater than six months in duration. In response to its submission, the FDA did not lift the hold, requested that Gemphire provide additional data, including two preclinical studies, namely, a subchronic (13 week) study of gemcabene in PPARa knock-out mice and a study of gemcabene in *in vitro* PPAR transactivation assays using monkey and canine PPAR isoforms and informed Gemphire that an end-of-phase 2 meeting to reach agreement on the design of Phase 3 registration and long-term safety exposure trials for its target indications in dyslipidemia would not take place until such time, if ever, as the clinical hold is lifted.

In late 2017 and early 2018, Gemphire announced the initiation of two investigator-initiated proof-of-concept Phase 2 trials in Familial Partial Lipodystrophy Disease (FPLD) and Pediatric Non-Alcoholic Fatty Liver Disease (NAFLD). In August 2018, the Data Safety Monitoring Board (DSMB) halted the Pediatric NAFLD trial early due to "unanticipated problems" in the first three patients, as described under the section entitled "*—Clinical Experience with Gemcabene—Non-Company Sponsored Phase 2 Human Trials*" below. The six pediatric patients that were enrolled in the study were monitored for 12 months post final dose and final results are pending.

In June 2019, Gemphire reported topline data from the FPLD trial. Overall gemcabene treatment resulted in a median change in serum triglycerides (TG) of –19.6% for the five patients at twelve weeks (the primary endpoint) with a range of TG responses from +40.4% to –52.9% and three patients showing decreases. See the section entitled "*—Clinical Experience with Gemcabene"* and *"—Non-Company Sponsored Phase 2 Human Trials"* below for additional details.

In September 2018, the Gemphire Board approved a workforce reduction to reduce costs and conserve cash resources in light of the delay in its Phase 3 trials resulting from the FDA's request for additional animal data in connection with the addressing the partial clinical hold on gemcabene. The workforce reduction included 5 employees, which represented approximately 33% of its workforce at such time, and was completed in the fourth quarter of 2018.

Subsequently, in December 2018, Gemphire announced that the Gemphire Board established a committee to oversee a review of strategic alternatives focused on maximizing stockholder value and that Gemphire had engaged Ladenburg Thalmann to act as its strategic financial advisor. Gemphire then commenced an extensive process of evaluating strategic alternatives, including identifying and reviewing potential candidates for a strategic acquisition or other transaction as described in the section entitled "*The Merger—Background of the Merger*".

On July 24, 2019, Gemphire announced (i) that it had entered into the Merger Agreement with NeuroBo and (ii) that it had entered into the Beijing SL License Agreement pursuant to which Gemphire has granted to Beijing SL an exclusive, royalty-bearing license to develop and commercialize

products containing gemcabene for the treatment of any human disease in mainland China, Taiwan, Hong Kong and Macau.

With respect to the partial clinical hold that prevents human studies of gemcabene that are greater than six months in duration, Gemphire has completed the *in vitro* PPAR transactivation studies and continues to work on completing the subchronic study of gemcabene in PPARa knock-out mice. As discussed below, assuming consummation of the merger, Gemphire is planning to submit to the FDA the results of the requested preclinical studies in January 2020. As described in the section entitled "*Agreements Related to the Merger—Contingent Value Rights Agreement*," at the Effective Time, Gemphire will enter into the CVR Agreement pursuant to which Gemphire Stockholders will receive CVRs entitling them to receive certain cash payments in the event rights to gemcabene are sold or licensed during a certain period following the Effective Time. Pursuant to the CVR Agreement, NeuroBo (as successor in interest to Gemphire following the merger), has agreed to commit $1 million (the funding of which was conditioned upon receipt by Gemphire of the $2.5 million upfront gross payment payable under the Beijing SL License Agreement, which was received in October 2019) to support the further development of gemcabene through the quarter ending March 31, 2020 and, specifically, to fund, (i) a toxicity study, (ii) a related FDA submission designed to result in the release of the partial clinical hold with respect to gemcabene, (iii) preparation for an end-of-phase 2 meeting with the FDA, and (iv) consulting costs for up to four employees to support such activities. Following the Effective Time, pursuant to the CVR Agreement, neither Gemphire nor NeuroBo will have any obligation to develop gemcabene, or to expend any funds or efforts with respect to gemcabene, other than the $1 million payment. Even if $1 million is insufficient to fund the matters set forth above or to achieve the lifting of the clinical hold, the combined company will not have any obligation to provide further funding and, following March 31, 2020, it may, in its sole discretion, discontinue any and all further efforts to develop, divest or otherwise monetize gemcabene. It has no other obligation to support the development of gemcabene or to undertake any effort or expend any resource to divest or otherwise monetize gemcabene or to otherwise maximize the likelihood or amount of any CVR payment. As discussed in the section entitled "*Gemphire Management's Discussion and Analysis of Financial Condition and Results of Operations*," if the merger is not consummated in a timely fashion, Gemphire would need to raise additional capital to continue to fund the further development of gemcabene and its operations, including submission of the additional information requested by the FDA to make a decision regarding lifting the partial clinical hold. Gemphire expects that it would be difficult to secure financing in a timely manner, on favorable terms or at all.

Gemphire expects to devote significant time and resources to completion of this merger. However, there can be no assurance that such activities will result in the completion of the merger on a timely basis or at all. Further, the completion of the merger may ultimately not deliver the anticipated benefits or enhance stockholder value.

If, for any reason, the merger does not close, the Gemphire Board may elect to dissolve and liquidate Gemphire's assets. Alternatively, if Gemphire were able to secure additional capital to provide it with necessary financial resources to pursue other options, it may attempt to pursue another strategic transaction like the merger, sell or otherwise dispose of its various assets or continue to operate its business. Any of these alternatives would be costly and time-consuming and would require that Gemphire obtain additional funding. Gemphire can make no assurances that it would be able to obtain additional financing or find a partner and close an alternative transaction on terms that are as or more favorable than the terms set forth in the Merger Agreement or that any such alternatives are possible or would be successful, if pursued. In addition, even if Gemphire were able to pursue such alternatives, the failure to complete the merger may result in negative publicity and/or a negative impression of Gemphire in the investment community, could significantly harm the market price of the Gemphire common stock and may affect Gemphire's relationship with employees and other partners in the business community. If the Gemphire Board were to decide to dissolve and liquidate Gemphire's assets,

Gemphire would be required to pay all of its debts and contractual obligations and to set aside certain reserves for potential future claims, and there can be no assurances as to the amount or timing of available cash left, if any, to distribute to the Gemphire Stockholders after paying debts and other obligations and setting aside funds for reserves.

**Historical Development Plan for Gemcabene**

Gemphire focused its historical efforts on developing gemcabene for treatment of dyslipidemias where patients are unable to reach their lipid lowering goals, including patients already receiving maximally tolerated statin therapy. Within dyslipidemia, indications broadly include Familial Hypercholesterolemia (FH), Atherosclerotic Cardiovascular Disease (ASCVD), Severe Hypertriglyceridemia (SHTG), Nonalcoholic Fatty Liver Disease (NAFLD), and Nonalcoholic Steatohepatitis (NASH). Within these broader indications are orphan diseases including Homozygous Familial Hypercholesterolemia (HoFH), Familial Chylomicronemia Syndrome (FCS; TGs>880mg/dL), and Familial Partial Lipodystrophy Disease (FPLD), which represent clear unmet clinical needs because current therapies are considered inadequate. Gemphire's plan to develop gemcabene for multiple clinical indications was based on: (1) promising clinical data and mechanism of action in these indications; (2) a cost-effective manufacturing process; (3) convenient oral dosing; (4) viability as adjunct combination therapy; and (5) the commercial potential.

During 2016 to 2018, Gemphire initiated and completed three Phase 2b clinical trials for gemcabene in HoFH, hypercholesterolemia, including Heterozygous Familial Hypercholesterolemic (HeFH) and ASCVD patients on maximally tolerated statins, and SHTG. Gemphire reported top line data from its 8 patient trial for HoFH (COBALT-1) in the second quarter of 2017, top line data from its 105 patient trial for hypercholesterolemia on high-intensity statin therapy including HeFH and ASCVD patients (ROYAL-1) in the third quarter of 2017, and top line data from its 91 patient trial in SHTG patients (INDIGO-1) in the second quarter of 2018. As previously announced, all three of these trials achieved statistical significance for their primary endpoints.

With the FDA decision in the third quarter of 2018 to require additional preclinical studies in order to consider lifting the partial clinical hold on gemcabene and scheduling an end-of-phase 2 meeting, Gemphire determined to initially focus on rare/orphan disease indications and subsequently broader indications because clinical trials for orphan indications are typically smaller and less costly and FDA approvals have been based on surrogate endpoints (e.g., serum LDL-C or serum TGs). Consequently, there was precedent for Gemphire to believe it could design efficient development plans to provide gemcabene as a treatment alternative for HoFH patients as well as FCS and FPLD patients and, if approved for one or more of these indications, could enable Gemphire to go to market initially by treating patients in the most severe segment of the dyslipidemia market and subsequently lead to trials in broader indications, such as SHTG and potentially ASCVD and NASH.

**Gemphire's Drug Product Candidate, Gemcabene**

Gemphire's drug product candidate, gemcabene, is a novel, once-daily, oral therapy designed to target known lipid metabolic pathways to lower levels of LDL-C, hsCRP and triglycerides. Gemcabene shares many of the attributes of statin therapy, including broad therapeutic applications, convenient route of administration and cost-effective manufacturing process, but does not appear to increase the reporting of myalgia when added to statin therapy. Gemcabene has also shown additive LDL-C lowering in combination with stable low, moderate or high-intensity statin therapy. As described below, Gemphire licensed global rights to gemcabene from Pfizer in April 2011. In the third quarter of 2018, the license with Pfizer was renegotiated providing three additional years to achieve its first commercial sale, by April 2024.

**Gemcabene's Mechanism of Action**

Gemcabene's mechanism of action is multifaceted. In the liver gemcabene acts in two major ways to reduce levels of circulating LDL-C and triglycerides: 1) inhibition of the two metabolic pathways that synthesize precursors (i.e., cholesterol and fatty acids) of VLDL-C, LDL-C and triglycerides and 2) stimulation of a liver mechanism known as the remnant receptor pathway that removes particles that contain cholesterol and triglycerides from the blood. Gemcabene's stimulation of this remnant receptor pathway involves enhanced removal of an LDL-C precursor known as very low-density lipoprotein remnants. With regard to gemcabene's anti-inflammatory properties, in human clinical trials and animal studies, to date, gemcabene has been shown to significantly reduce plasma levels of CRP. Furthermore, in preclinical studies of dyslipidemia as well as NASH, gemcabene inhibited production of a number of known pro-inflammatory molecules (e.g., CRP, CCR2, CCR5, IL-6, TNF-alpha, MCP-1 and MIP1-beta) as well as pro-fibrotic factors (e.g., TIMP-1, MMP-2). Overall, gemcabene's multifaceted mechanism of action provides the potential for safely addressing multiple major risk factors in a broad array of cardiometabolic patients who have an elevated risk of cardiovascular or liver disease, even when taking conventional therapies.

**Clinical Experience with Gemcabene**

Gemcabene has been assessed in 25 Phase 1 and Phase 2 clinical trials, including 2 proof-of-concept trials that have completed the drug treatment phase with post-treatment monitoring and data analysis ongoing. Across these trials, over 1,500 adult subjects have participated, including healthy volunteers and patients with various underlying conditions. Of these subjects, over 1,100 have been exposed to at least one dose of gemcabene.

Across the company-sponsored clinical trials, gemcabene was observed to be well tolerated at single doses up to 1,500 mg and multiple doses up to 900 mg/day. Safety of the subjects in these trials was evaluated by AE monitoring, clinical laboratory assessments, electrocardiograms (ECGs), physical examinations, and vital sign assessments. Across all trials, 10 gemcabene treated healthy volunteers or patients reported a treatment-emergent SAE, none of which were considered by the clinician to be related to gemcabene. No deaths occurred in any of the trials. AEs reported were generally mild to moderate in intensity with the most common events being headache, weakness, nausea, dizziness, upset stomach, infection and abnormal bowel movements. Gemcabene, when compared with placebo, was not associated with an increased incidence of myalgia or liver enzyme elevations, whether as monotherapy or in combination with statin therapy. Elevated levels of liver enzymes, specifically alanine transaminase (ALT) and/or aspartate aminotransferase (AST), were observed in three patients (0.27% of gemcabene treated subjects). These three patients had ALT or AST levels more than three times the upper limit of normal (ULN)) returning to near baseline after cessation of treatment. Small mean increases in serum creatinine and blood urea nitrogen (BUN) have been observed in some trials. The increase in creatinine values was reversible returning to baseline within approximately four weeks of cessation of gemcabene. No clinically meaningful changes were observed in physical examinations or vital signs, including blood pressure.

In addition, gemcabene demonstrated promising clinical pharmacology attributes across 15 completed company-sponsored Phase 1 trials in healthy subjects, such as once-daily dosing, no meaningful drug-drug interactions with high-intensity statins and no observed food effect. Gemcabene can be taken with or without food. Gemcabene was observed to: (1) be rapidly absorbed following oral administration with time of maximum concentration within two hours and (2) reach maximum plasma concentration ($C_{max}$) and area under the curve over 24 hours ($AUC_{0-24}$) that were dose proportional following both single-and multiple-dose administration. Steady state concentrations were achieved within six days of repeated dose administration. Average half-life ranged from 32 to 41 hours. Gemcabene's primary route of elimination was renal. No significant drug-drug interactions (DDIs) were observed with digoxin, a cardiovascular drug for the treatment of atrial fibrillation, statins (atorvastatin,

simvastatin and rosuvastatin) used as background therapy in patients with HoFH, HeFH and many SHTG patients.

Gemcabene has been evaluated in ten company-sponsored Phase 2 trials across a diverse patient population. These trials explored safety, tolerability and efficacy using multiple doses of gemcabene as monotherapy and in combination with low-, moderate- and high-intensity statins. In company-sponsored Phase 2 trials, patients treated with gemcabene were observed to have significantly lowered LDL-C, hsCRP and triglycerides. Results from several of these trials are summarized here.

***Gemcabene Phase 2 Trial in Patients with HoFH (GEM-201, COBALT-1)***

This Phase 2 open-label, dose-finding trial assessed the efficacy, safety, and tolerability of gemcabene in patients with HoFH on stable, lipid-lowering therapy. COBALT-1 was a 12-week, dose-escalation trial with n=8 patients with a diagnosis of HoFH by genetic confirmation (including heterozygosity) or a clinical diagnosis based on either: (1) A history of an untreated LDL-C concentration >500 mg/dL (12.92 mmol/L) together with either appearance of xanthoma before 10 years of age, or evidence of heterozygous familial hypercholesterolemia in both parents; or (2) if history is unavailable, LDL-C >300 mg/dL (7.76 mmol/L) on maximally tolerated lipid-lowering drug therapy.

***Efficacy:*** Patients were administered oral gemcabene once daily, with dosage escalating from 300 mg to 600 mg and then 900 mg every 4 weeks, for a total duration of 12 weeks. On various baseline aggressive lipid lowering therapies, the eight FH patients had a mean baseline LDL-C level of 351 mg/dl prior to add-on gemcabene treatment. Treatment with gemcabene 600 mg resulted in an absolute reduction of 93 mg/dL (25%) for the overall population and 92 mg/dL (39%) and 94 mg/dL (15%) for the HoFH and HeFH patients, respectively. Gemcabene also impacted multiple secondary endpoints, showing reductions from baseline in total cholesterol (TC), triglycerides (TG), non-HDL, apoB, apoE, high sensitivity C-Reaction Protein (hsCRP), and other relevant biomarkers.

***Safety:*** Safety was assessed by adverse event (AE) monitoring, clinical laboratory assessments, electrocardiograms, physical examinations and vital signs. AEs were mild to moderate in intensity across all doses of gemcabene and consistent with previously reported AEs. There were no serious AEs or withdrawals due to AEs in the COBALT-1 trial. There was no evidence of hepatic or muscle injury in the trial.

***Gemcabene Phase 2 Trial in Patients with Hypercholesterolemia on High- and Moderate-Intensity Statin Therapy (GEM-301, ROYAL-1)***

ROYAL-1 was designed to largely address the safety of gemcabene in patients on the highest doses of statins. In patients with hypercholesterolemia, despite being on moderate and high-intensity statins, gemcabene produced significant reductions in both atherogenic and inflammatory markers without evidence of increased muscle or liver toxicities. A total of 105 hypercholesterolemic patients, including ASCVD or HeFH, were randomized 1:1 to either gemcabene 600 mg or placebo with 50 (24 gemcabene 600 mg; 26 placebo) patients on baseline high-intensity statins (atorvastatin 40 mg or 80 mg QD; or rosuvastatin 20 mg or 40 mg QD) and 55 (29 gemcabene 600 mg; 26 placebo) patients on baseline moderate-intensity (MI) statins (atorvastatin 10 mg or 20 mg QD; rosuvastatin 5 mg or 10 mg QD; or simvastatin 20 or 40 mg QD). Baseline LDL-C was 127 mg/dL and 134 mg/dL in the moderate and high-intensity statin stratum, respectively. The double-blind treatment phase of the trial was 12 weeks.

***Efficacy:*** Top-line data for ROYAL-1 showed gemcabene produced a mean percent decrease of 17% in LDL-C (vs 5% for placebo) and a median percent decrease of 40% in hsCRP (vs 6% for placebo). Gemcabene reduced LDL-C by 20% and hsCRP by 53% when added to moderate intensity statin therapy. Greater effects were observed in a cardiometabolic population, patients with mixed

dyslipidemia, who have a particularly high atherogenic particle burden. In the mixed dyslipidemia group of patients, gemcabene 600 mg demonstrated a placebo adjusted LDL-C reduction of 23% ($p < 0.05$). Consistent with the mechanism of action of gemcabene, patients with mixed dyslipidemia showed greater reductions in LDL-C, non-HDL-C, ApoB, ApoE and TG of 23%, 19%, 26%, 34% and 33%, respectively.

***Safety:*** Overall, gemcabene was well tolerated with a profile consistent with earlier trials. There were no SAEs and no deaths reported in the trial. 33 of 54 patients (61.1%) in the gemcabene group and 24 of 51 patients (47.1%) in the placebo group who reported at least one AE during the trial. The most prevalent AEs were those associated with infections. Reported AEs were similar for the MI and HI statin stratums. There was no difference in myalgias between placebo and gemcabene groups. There were no transaminase elevations > 3 x ULN and no clinically significant CK elevations.

***Gemcabene Phase 2 Trial in Patients with Hypercholesterolemia on Stable Statin Therapy (Trial 1027-018)***

This Phase 2 double-blind, placebo-controlled, randomized trial in patients with hypercholesterolemia was designed to assess the efficacy and safety of gemcabene when added to stable statin therapy. A majority of the patients were on moderate- to high-intensity statin therapy for at least three months (high ≈20%, mod ≈60% and low ≈20%). Gemcabene was administered at 300 mg and 900 mg once-daily for eight weeks. The primary endpoint was median percent change from baseline in LDL-C. Other endpoints included median percent change from baseline in hsCRP, apoB, total cholesterol, VLDL-C and triglycerides at Week 8. A total of 66 patients were randomized and 61 patients were evaluated for efficacy. Baseline LDL-C levels were similar across the treatment arms at approximately 150 mg/dL.

***Efficacy:*** Patients treated with gemcabene were observed to have significantly lowered LDL-C from baseline at 300 mg and 900 mg by 25% ($p=0.005$) and 31% ($p<0.001$), respectively. Patients treated with gemcabene were also observed to have significantly lowered hsCRP, apoB and total cholesterol. At 900 mg, patients treated with gemcabene demonstrated significantly lowered hsCRP by 54% ($p<0.001$). At 300 mg and 900 mg, patients treated with gemcabene demonstrated significantly lowered apoB by 20% ($p=0.033$) and 24% ($p=0.003$), respectively. At 300 mg and 900 mg, patients treated with gemcabene demonstrated significantly lowered total cholesterol by 18% ($p=0.008$) and 22% ($p<0.001$), respectively. It was further observed that all four (4) patients treated with 900 mg gemcabene on high-intensity statins have a mean LDL-C reduction of 24%.

***Safety:*** Gemcabene was observed to be well tolerated. Patients taking either 300 mg or 900 mg of gemcabene were observed to have a safety profile similar to that of placebo (300 mg: 20%; 900 mg: 23%; placebo: 29%). One patient experienced an SAE in the gemcabene 900 mg treatment arm, which was not considered related to treatment. Three patients (placebo: 2, gemcabene 300 mg: 1) withdrew from the trial due to an AE, all of which were considered possibly related to treatment. AEs reported were generally mild to moderate in intensity. The most frequent AE in the placebo arm was infection (13%). The most frequent AEs in the gemcabene treatment arms were headache (10%) and infection (10%). There were no meaningful changes in liver enzymes ALT and AST. One patient in the 300 mg gemcabene treatment arm had a single laboratory assessment with a rise in creatine kinase of 5 × upper limit of normal (ULN). No clinically meaningful changes in physical examinations or vital signs from baseline to the end of the trial were observed for any patient.

***Gemcabene Phase 2 Trial in Patients with Hypercholesterolemia (Trial A4141001)***

This Phase 2 double-blind, placebo-controlled, randomized trial was designed to assess the efficacy and safety of gemcabene administered as monotherapy, atorvastatin monotherapy or gemcabene initiated simultaneously in combination with atorvastatin in the treatment of patients with hypercholesterolemia. When applicable, patients were washed out of statins and other lipid-lowering

therapies. Gemcabene was administered as monotherapy once-daily at 300 mg, 600 mg or 900 mg or in combination with atorvastatin once-daily at 10 mg, 40 mg and 80 mg. The primary endpoint was percent change in LDL-C from baseline at Week 8. Secondary endpoints included percent change in hsCRP, apoB, HDL-C and triglycerides from baseline at Week 8. A total of 277 patients were randomized and 255 patients with at least one post baseline assessment were included in the efficacy analysis. Baseline LDL-C levels for the evaluable patients after washout were similar across treatment arms at approximately 175 mg/dL.

***Efficacy:*** Patients treated with gemcabene were observed to have significantly lowered LDL-C by 17% (p=0.0013), 26% (p=0.0001) and 29% (p=0.0001) as monotherapy at 300 mg, 600 mg and 900 mg, respectively. The LDL-C lowering effect was seen within two weeks and was stable for the duration of the eight week trial. It is important to note that the patients included in this trial were statin responsive (able to reach goal near or below 100 mg/dL) at 10 mg, 40 mg and 80 mg atorvastatin monotherapy. While the trial demonstrated gemcabene provided additional dose dependent LDL-C lowering (statistically significant at 600 mg and 900 mg when compared to atorvastatin alone), the gemcabene treatment effect was less pronounced due to the patients already being at or below LDL-C goal of 100 mg/dL on atorvastatin monotherapy. Patients treated with gemcabene were observed to have lowered hsCRP by 26% (p=0.1612), 42% (p=0.0070) and 35% (p=0.0018) as monotherapy at 300 mg, 600 mg and 900 mg, respectively.

Patients treated with gemcabene in combination with atorvastatin aggregated over the dose range were observed to have mean LDL-C lowering of 50% (p=0.0852), 52% (p=0.0045) and 54% (p=0.0006) at 300 mg, 600 mg and 900 mg, respectively. Patients treated with gemcabene in combination with atorvastatin aggregated over the dose range were observed to have median hsCRP lowering of 47% (p=0.0237), 54% (p=0.0017) and 60% (p=0.0001) at 300 mg, 600 mg and 900 mg, respectively.

***Safety:*** Gemcabene was observed to be well tolerated. Patients taking any dose of gemcabene (300 mg, 600 mg or 900 mg) were observed to have a safety profile similar to that of atorvastatin monotherapy. A similar percentage of patients experienced an associated AE between placebo (18%), atorvastatin monotherapy arms (14%) compared to gemcabene monotherapy (18%) and gemcabene plus atorvastatin treatment arms (17%). Three patients in the gemcabene plus atorvastatin arm experienced a SAE, none of which were considered related to treatment. Small mean increases in serum creatinine and BUN were observed in the gemcabene monotherapy arms. One patient treated with 600 mg gemcabene plus atorvastatin had a clinically significant ALT elevation (>3 × ULN on two separate occasions) that returned to near normal levels while treatment continued.

***Gemcabene Phase 2 Trial in Patients with Elevated Triglycerides (Trial 1027-004)***

This Phase 2 double-blind, placebo-controlled, randomized trial was designed to assess the efficacy and safety of gemcabene in patients with low HDL-C and either normal or elevated triglycerides. Gemcabene was administered at 150, 300, 600 and 900 mg once-daily for 12 weeks. The objectives of this trial were to evaluate percentage change from baseline in HDL-C, LDL-C, triglycerides and other lipids and apolipoprotein variables at Week 12. A total of 161 patients were randomized. At baseline, 67 patients were normotriglyceridemic (<200 mg/dL) and 94 patients were hypertriglyceridemic (³200 mg/dL). Baseline triglycerides were approximately 370 mg/dL across the treatment arms with hypertriglyceridemia with the exception of the 600 mg treatment arm (580 mg/dL). A total of 155 patients (89 hypertriglyceridemic patients) had a post randomization assessment to be evaluated for efficacy. Baseline LDL-C levels for the evaluable patients, regardless of the triglyceride stratum, were similar across the treatment arms at approximately 110 mg/dL.

***Efficacy:*** As presented in the figure below, patients with triglyceride levels greater than 200 mg/dL (hypertriglyceridemic patients), treated with gemcabene at 150 mg and 300 mg were observed to have

lowered triglycerides by 27% (p=0.002) and 39% (p<0.001), respectively compared to baseline. Although patients treated with gemcabene at 600 mg and 900 mg were observed to have lower triglycerides, the lowering effect was not significant when compared to placebo. Therefore, the anticipated dose for treatment of patients with elevated triglyceride levels is 150 mg or 300 mg. Notably, patients treated with gemcabene were observed to have significantly lowered LDL-C by 19% (p<0.001) and 20% (p<0.001) at 600 mg and 900 mg, respectively, compared to baseline. A post-hoc analysis of the nine patients with severe triglyceride levels (³500 mg/dL; baseline means of two weeks prior and time zero was approximately 600 mg/dL) treated with 150 mg and 300 mg suggest gemcabene has the potential to lower triglycerides by as much as 60%.

***Safety:*** Gemcabene was observed to be well tolerated. Patients taking any dose of gemcabene (150 mg, 300 mg, 600 mg or 900 mg) were observed to have a safety profile similar to that of placebo. Two patients (one placebo patient and one 600 mg gemcabene patient) had ALT values that met the definition of a clinically important laboratory abnormality. One patient had elevated BUN values considered clinically significant (600 mg gemcabene: 1). All of these laboratory abnormalities were considered mild to moderate. No clinically meaningful changes in physical examinations or vital signs from baseline to the end of the trial were observed for any patient.

***Gemcabene Phase 2 Trial in Patients with Severe Hypertriglyceridemia (GEM-401, INDIGO-1)***

Trial GEM-401 was a 12-week, randomized, double-blind, placebo-controlled, parallel-group, multicenter trial designed to evaluate the efficacy, safety, and tolerability of gemcabene administered orally to patients with severe hypertriglyceridemia. Patients were required to be on a self-reported, stable, low-fat, low-cholesterol diet and if on a stable dose of statins and/or ezetimibe (10 mg), statins and ezetimibe must have been started at least 12 weeks prior to the Screening Visit (S1). Patients were eligible for enrollment if they had a mean fasting TG value ³ 500 mg/dL to < 1500 mg/dL. A total of 91 patients were randomized and treated (30 to the gemcabene 300 mg group, 30 to the gemcabene 600 mg group, and 31 in the placebo group). Of these, 89 patients completed the trial.

Baseline characteristics were similar between treatment groups and across statin strata with the exception of a higher number of female patients in the placebo group. Mean baseline TG was slightly higher in the placebo group (658.33 mg/dL) than in the gemcabene groups (641.17 mg/dL and 637.00 mg/dL in the 300 mg and 600 mg groups, respectively). There were 47 patients on stable statins and 44 patients not on stable statin.

***Efficacy:*** The median percent decrease in TG from baseline was 47.32% (p = 0.0063) versus a decrease of 27.30% with placebo. In the gemcabene 300 mg group, treatment with gemcabene demonstrated a clinically significant, statistically non-significant TG lowering with a median percent decrease in TG from baseline of 32.95% (ranked ANCOVA p = 0.2350).

In patients in the baseline qualifying TG ³ 880 mg/dL strata the median percent decrease from baseline in TG was 55.64% (n=6) in the gemcabene 600 mg group and 37.56% (n=6) in the gemcabene 300 mg group vs a median percent reduction of 36.98% (n=7) with placebo. The result of the ranked ANCOVA was not statistically significantly different than placebo for either treatment group. The gemcabene 600 mg group showed a statistically significant median percent decrease from baseline in LDL-C as compared with the placebo group at Week 12 (7.94% vs 25.43%, p = 0.0244) and end of study (EOS) (13.36% vs 14.73%, p = 0.0307).

***Safety:*** In all patients, including those receiving statins, gemcabene was well-tolerated. Adverse events were reported by approximately half of the patients in the gemcabene groups and by more than half of the patients in the placebo group. The majority of these AEs were considered mild in severity. A total of 4 and 2 patients, respectively in the gemcabene 600 mg and 300 mg groups experienced AEs related to the trial drug, compared to 4 in the placebo group. There were no withdrawals due to

Treatment Emergent Adverse Events (TEAEs), 1 SAE in a placebo patient, and no deaths. The patients who experienced potentially clinically significant post baseline laboratory abnormalities with consecutive occurrences, eventually saw their values return to or near their normal ranges. One patient in the gemcabene 600 mg group had a confirmed transient increase in ALT > 3 x ULN and 1 subject in the gemcabene 600 mg group had confirmed transient increase in serum creatinine > 0.3 mg/dL.

**Non-Company Sponsored Phase 2 Human Trials**

Two non-company sponsored Investigator-Initiated proof-of-concept Trials (IIT) in Pediatric NAFLD and adult FPLD are currently in post-treatment monitoring and data analysis.

***IIT-GEM-601 (NDA 133247) in Pediatric Non-Alcoholic Fatty Liver Disease (NAFLD)***

Investigator Initiated Trial GEM-IIT-601 (Investigational New Drug (IND) application 133247) is an open-label, 12-week Phase 2a study evaluating gemcabene 300 mg in pediatric patients with non-alcoholic fatty liver disease (NAFLD). In 2018 the study enrolled 6 of the planned 40 adolescent patients, 12-17 years in age. In August 2018, the DSMB halted the trial early due to "unanticipated problems" in the first three patients. Specifically, the primary efficacy endpoint of ALT increased beyond baseline levels in two of these three patients. At baseline and as outlined in study inclusion criteria, ALT for these two patients were elevated 3—fold and 10-fold compared to ALT levels reported for healthy pediatric patients (~25IU/L) of similar age. In addition, all three patients had an increase in the secondary endpoint of liver fat fraction as measured by MRI-PDFF. All patients gained weight and had increased TGs during study treatment, in contrast to data in other gemcabene trials. Patients were instructed to self-administer the test-agent daily, however compliance was compromised as assessed by return of unused tablets and measurement of blood drug levels. One observation of increased ALT and two observations of increased liver fat were reported as AEs considered related to gemcabene. No events were reported as SAEs and no Suspected Unexpected Serious Adverse Reaction (SUSAR) report was filed with the FDA by the primary investigator. The risk for increased liver fat with gemcabene treatment is unknown at this time. The six pediatric patients were monitored for 12 months post-final dose and final results are pending.

***IIT-GEM-602 (NDA 137608) in Familial Partial Lipodystrophy Disease (FPLD)***

Investigator-initiated GEM-IIT-602 is an open-label, randomized, Phase 2 study in adult FPLD patients with elevated TGs and NAFLD to assess the efficacy and safety of two dosing regimens of gemcabene (300 mg QD for 24 weeks or 300 mg QD for 12 weeks followed by 600 mg QD for 12 weeks). Gemcabene treatment resulted in a median change in serum triglycerides (TG) of –19.6% for the five patients at twelve weeks (the primary endpoint). The range of TG responses was +40.4% to –52.9%, with three patients showing decreases. Secondary endpoints included measurement of liver fat fraction by MRI-PDFF which showed reduction in two of the three responding patients. Four patients completed treatment and a fifth one discontinued at 22 weeks (with data carried forward as 24 weeks). Gemcabene appeared to be generally safe and well-tolerated in these five patients. There was one serious adverse event of benign paroxysmal positional vertigo, considered unrelated to gemcabene.

**Gemcabene Phase 1 Clinical Trials**

Gemcabene has been evaluated in ten completed Phase 1 trials in healthy volunteers as well as in patients with renal insufficiency or hepatic insufficiency. These trials explored safety, tolerability,

pharmacokinetics, pharmacodynamics, and dose response as monotherapy and in combination with high-intensity statin doses and other drugs. Results from these trials indicated that:

- There are no meaningful drug-drug interaction (DDI) between gemcabene and several statins. A combination of gemcabene a single dose of either atorvastatin or rosuvastatin, or multiple doses of simvastatin trials found that there were mixed effects on the analytes with some analytes showing induction and others showing inhibition. However, all the effects were weak and would not require a dose adjustment for these statins.

- In patients with renal insufficiency (RI), based on the observed pharmacokinetics (PK) of gemcabene, no dose adjustment would be needed for subjects with mild RI. Treatment of patients with moderate RI should be initiated at a lower dose (e.g., 300 mg/day) and increased only after evaluation of the effects on renal function and lipid levels at this dose. The use of gemcabene should be avoided in patients with severe RI.

- In patients with hepatic insufficiency (HI), PK measurements indicated that no gemcabene dose adjustment should be needed for patients with mild or moderate HI. Gemcabene pharmacokinetics was not assessed in severe HI, and gemcabene use should be avoided in patients with severe HI.

**Gemcabene Preclinical Studies**

As part of a nonclinical toxicology program, over 30 exploratory and definitive single and repeated-dose toxicity trials with gemcabene were conducted in mice, rats, dogs and monkeys. Gemcabene was well-tolerated in these completed trials. In addition, in multiple preclinical pharmacology trials, gemcabene was observed to lower plasma LDL-C, triglycerides and anti-inflammatory markers in diet-induced and genetic preclinical models of dyslipidemia and NASH.

Beginning in 2004, the FDA began issuing partial clinical holds to all sponsors of PPARs or agents deemed to have PPAR-like properties from preclinical trials. Peroxisome proliferation-activated receptor (PPAR) agonists are natural ligands or drugs which bind to PPARs and turn on or off PPAR responsive genes in the cell nucleus. PPARs comprise three subtypes, PPARa, PPARg and PPARb (also referred to as PPARd). When the PPARs are activated by natural or pharmaceutical molecules, those molecules can regulate (turn-off or turn-on) the transcription (making messenger RNA) of genes that regulate the storage and mobilization of lipids (fats), glucose metabolism, and inflammatory responses. PPARa and PPARg are the molecular targets of a number of marketed drugs to treat metabolic syndrome including lowering triglycerides and cholesterol such as fibrate drugs and to treat diabetes mellitus and insulin resistance such as thiazolidinedione drugs. The FDA takes the position that preclinical data suggest PPAR agonists are carcinogenic in rodents. In 2004, the FDA determined that gemcabene was a PPAR agonist and issued a partial clinical hold, which permits human clinical trials of up to six months for gemcabene and also required the completion of two-year rat and mouse carcinogenicity trials before conducting clinical trials of longer than six months. In 2018, Gemphire completed and submitted to the FDA the results from its two-year rodent carcinogenicity studies. In response to the submission, the FDA did not lift the partial clinical hold, requested that Gemphire provide additional data, including two preclinical studies, namely, a subchronic (13 week) study of gemcabene in PPARa knock-out mice and a study of gemcabene in *in vitro* PPAR transactivation assays using monkey and canine PPAR isoforms, and informed Gemphire that an EOP2 meeting to reach an agreement on the design of Phase 3 registration and long term safety exposure trials for its target indications in dyslipidemia would not take place until such time, if ever, as the partial clinical hold is lifted.

Gemphire believes the effects observed in rodents, specifically peroxisome proliferation, activation of PPARa specific genes, elevation of liver weight, and tumors, are likely rodent-specific phenomena seen with PPARa agonists. Based on historical nonclinical and clinical experience on these type of compounds, Gemphire believes rodents share little apparent relevance for human risk assessment. In a

recently completed PPAR agonist receptor binding assays Gemphire observed little or no gemcabene direct binding to the mouse, rat, or human PPARa, PPARb, or PPARg receptors, whereas reference agents for each of the receptors showed the expected binding, including marketed PPARa agents, such as fibrates, including gemfibrozil. Gemphire believes the PPARa responses in rats and mice are secondary and perhaps related to the mobilization or formation of a naturally occurring molecule that binds to PPARa in response to gemcabene administration.

As noted above, Gemphire has completed the *in vitro* PPAR transactivation studies and continues to work on completing the subchronic (13 week) study of gemcabene in PPARa knock-out mice. Gemphire is working to complete the preclinical studies and expects to submit the results to the FDA in January 2020. See the section entitled "—*Overview*" above for a discussion regarding the limited obligations of the combined company to further the development of gemcabene under the CVR Agreement.

**Overview of Dyslipidemia Markets**

Gemphire believes that oral, once-daily gemcabene as an add-on to statin and other existing therapies is differentiated by the ability to lower multiple risk factors (LDL-C, hsCRP and triglycerides) and, if approved, presents a significant opportunity across multiple indications in dyslipidemia and NASH. These indications span from orphan indications including HoFH, FCS and FPL to more prevalent conditions, such as SHTG, HeFH, ASCVD and NASH in which therapies are required to reduce elevated levels of LDL-C, triglycerides, inflammation or any combination thereof.

According to the World Health Organization, cardiovascular disease is the number one cause of death in the world, responsible for 17.5 million, or approximately one in three, deaths in 2012. Cardiovascular disease is influenced by both environment and genetics. Environmental factors include diet, smoking, excess weight and sedentary lifestyle. Genetic defects can cause certain types of cardiovascular disease, such as familial hypercholesterolemia, a condition in which mutations on one or more genes can result in elevated LDL-C levels in patients. Cardiovascular burden in the U.S. is expanding at an alarming rate. The prevalence of CVD was 41.5% in 2015, due to the rising effects of obesity and the earlier onset of type 2 diabetes. It is estimated that 45% of the U.S. population will have at least one cardiovascular condition by 2035.

Dyslipidemia is characterized by an elevation of LDL-C, triglycerides or both. Dyslipidemia leads to cardiovascular disease and is generally an important predictor of cardiovascular events, including heart attack and stroke. It is estimated that 71 million American adults, or approximately 33%, have high LDL-C levels, which is a major risk factor for cardiovascular disease. Gemphire estimates from 2015 data that over 33 million patients are prescribed statins, of which a little more than half, or 19 million, are secondary prevention patients. Of these 19 million secondary prevention patients, approximately 10 million are ASCVD patients who are not at their LDL-C goal. Furthermore, it is estimated that over 30% of American adults have elevated triglycerides above 150 mg/dL, and high levels of triglycerides are even evident in patients with normal cholesterol levels. If untreated, elevated triglycerides levels may lead to more serious illnesses, such as atherosclerosis (plaque build-up in the arteries) and severely elevated triglyceride levels may lead to pancreatitis (inflammation of the pancreas). The dyslipidemia market has achieved approximately $17 billion in worldwide drug sales in 2015 and remains one of the largest therapeutic markets.

NASH is an advanced form of NAFLD in which a buildup of excess triglycerides in the liver (steatosis), usually in the context of metabolic dysregulation, results in liver damage (hepatocyte ballooning) and increased inflammation. This condition can lead to hepatic fibrosis and cirrhosis and eventually hepatocellular carcinoma (HCC) in some patients. NASH is now the second most common cause for liver transplantation in the U.S. Gemphire believes there are currently no approved medications for treating NASH in any market across the globe. Disease management chiefly involves

lifestyle modification, some off-label medication use, and monitoring for disease progression. Off-label medications typically include antioxidant, antidiabetic, and lipid modifying agents. Despite the potentially serious liver complications, the natural progression of NASH is relatively slow, and CV disease is the leading cause of death among NASH patients, partly as a result of the disease and partly due to the common comorbidities in patients with NASH, including type 2 diabetes and obesity.

**Potential Orphan Indications**

Potential orphan indications for gemcabene are summarized below:

***Homozygous Familial Hypercholesterolemia (HoFH)***

HoFH is a rare genetic disease that is usually caused by mutations in both alleles of the LDL receptor gene responsible for removing LDL from the blood. As a result of having defective or deficient LDL receptor function, HoFH patients exhibit severely high LDL-C levels, are at very high risk of experiencing premature cardiovascular events, such as a heart attack or stroke, and develop premature and progressive atherosclerosis. LDL-C levels in HoFH patients are often in the range of 500 mg/dL to 1,000 mg/dL, compared to a normal target range of 70 mg/dL to 100 mg/dL. Unless treated, most patients with HoFH do not survive adulthood beyond 30 years of age. There are approximately 300 to 2,000 HoFH patients in the United States and 6,000 to 45,000 patients in the rest of the world based on an estimated prevalence rate of one in 160,000 to one in one million.

Current available treatments for HoFH generally include a combination of dietary intervention, statins, ezetimibe and other approved LDL-C lowering therapies, including lipoprotein apheresis. However, even when combination therapies are utilized, many patients still have high LDL-C levels and are still at high risk of cardiovascular disease. The FDA has approved two non-statin therapies for HoFH, Juxtapid, marketed by Aegerion Pharmaceuticals, Inc. (Aegerion), and Kynamro, marketed by Sanofi. Although these drugs have demonstrated efficacy, they have significant safety and tolerability concerns, including boxed warnings for liver toxicity on the product labels. Recently, the FDA has also approved Amgen's PCSK9 inhibitor, Repatha, for HoFH patients, but this therapy has limitations due to its mechanism of action reliant on functional LDL-receptors. In clinical trials, Repatha has shown substantially less LDL-C lowering from baseline in patients with HoFH compared to LDL-C lowering in patients with other hypercholesterolemia indications.

On February 6, 2014, gemcabene received Orphan Drug Designation by the FDA for treatment of HoFH. In June and September 2015, Gemphire received FDA feedback from its Type C meetings related to the development of gemcabene for the treatment of patients with HoFH. The FDA indicated that historically LDL-C has been accepted as a surrogate endpoint for cardiovascular risk reduction for lipid-altering drugs to support traditional approval, including patients with HoFH. The FDA reiterated weighing the magnitude of LDL-C reduction in light of the drug's safety profile (e.g., benefit/risk) when using a surrogate endpoint such as LDL-C. The IND for the treatment of dyslipidemia including HoFH was submitted to the FDA in December 2015 and remains in effect.

***Familial Chylomicronemia Syndrome (FCS)***

FCS is a rare disease caused by a mutation in one or more genes of the lipoprotein lipase (LPL) complex, which breaks down triglycerides. FCS can result from mutations in LPL gene itself, or from mutations in apoC-II, GPIHBP1, LMF1 factor 1, or apoA-V. When any part of the LPL complex is defective, there is a massive accumulation of chylomicrons in the blood. Diagnosis based on fasting triglyceride levels >880 mg/dL, and patients often experience recurrent abdominal pain and/or pancreatitis. FCS represents ~3000-5000 patients worldwide (~1000 in the US). There are currently no FDA-approved treatments for FCS.

***Familial Partial Lipodystrophy Disease (FPLD)***

FPLD is a rare genetic disorder and orphan disease characterized by an abnormal distribution of fatty (adipose) tissue. As the body is unable to store fat correctly, a buildup can occur around all vital organs and in the blood (hypertriglyceridemia). FPLD can also cause an abnormal buildup of fats in the liver (hepatic steatosis), which can result in an enlarged liver (hepatomegaly) and abnormal liver function. FPLD can lead to loss of metabolic control and a variety of metabolic abnormalities, including diabetes, cardiovascular disease, hypertriglyceridemia and NASH.

**Potential Broader Indications**

Potential broad indications for gemcabene are summarized below:

***Severe Hypertriglyceridemia (SHTG)***

Elevated triglycerides are often caused by an inherited disorder or exacerbated by uncontrolled diabetes mellitus, obesity, hypothyroidism and sedentary habits. A recent scientific statement on "Triglycerides and Cardiovascular Disease" issued by the American Heart Association based on a review of the pivotal role of triglycerides in lipid metabolism, reaffirmed that triglycerides are not directly atherogenic, but represent an important biomarker of cardiovascular disease. Patients with severe triglycerides greater than 500 mg/dL, or SHTG, have increased risk of developing pancreatitis, a painful and potentially life-threatening inflammation of the pancreas. Based on a 1.1% prevalence rate in the United States, as published by the American Heart Association, Gemphire estimates there are approximately 3.5 million patients with SHTG in the United States and 75 million patients in the rest of the world.

Current available treatments for SHTG consist of dietary modifications to lower the intake of fatty foods and the use of fibrates, prescription fish oils and niacin. These treatments are often inadequate in lowering triglyceride levels below 500 mg/dL, the level above which patients are at an increased risk for developing pancreatitis. Due to the severely elevated triglyceride levels in this patient population, reducing triglyceride levels below 500 mg/dL may require reductions in triglyceride levels of 40% or more. Current therapies, even in combination, are often insufficient in achieving such a result. In addition, many of the existing treatments do not combine well with statins for treating SHTG.

***Non-Alcoholic Fatty Liver Disease (NAFLD) and Non-Alcoholic Steatohepatitis (NASH)***

NAFLD ("fatty liver" in which patients have fat in their liver, but no inflammation or liver damage) affects 10-30% of Americans. NASH is a severe form of fatty liver disease with the presence of hepatocyte ballooning, inflammation and fibrosis in the organ. In the United States, NASH affects up to approximately 2-5% of the population roughly at 6 million adult NASH patients and 2 million pediatric NASH patients. The underlying cause of NASH is unclear, but it most often occurs in persons who are middle-aged and overweight or obese. Many patients with NASH have elevated serum lipids, diabetes or pre-diabetes. Progression of NAFLD/NASH can lead to liver fibrosis, cirrhosis, hepatocellular carcinoma, liver failure and liver-related death. Liver transplantation is currently the only treatment for advanced cirrhosis with liver failure.

At this time, there are no approved treatments by the FDA for NAFLD/NASH. Based on the current understanding of pathophysiological mechanisms associated with NASH, several compounds are in clinical development. The Clinical Trials website lists many trials for NASH. These compounds target the regulation of dyslipidemia (e.g., acetyl CoA carboxylase inhibitors, bile acid/fatty acid conjugates), inflammation (e.g., combined CCR2/CCRCR5 inhibitor) and/or fibrosis (e.g., obeticholic acid). Recently, it was announced that obeticholic acid achieved statistically significant improvement in liver fibrosis without worsening of NASH in a Phase 3 study.

Gemcabene may be effective in treating patients for NASH given its mechanism of action around inflammation and triglycerides, especially for obese and diabetic patients.

***Atherosclerotic Cardiovascular Disease (ASCVD) and Heterozygous Familial Hypercholesterolemia (HeFH)***

ASCVD and HeFH patients are at elevated risk of experiencing a cardiovascular event.

ASCVD represents patients who have experienced or are at risk of a cardiovascular event and are unable to meet their LDL-C lowering goal of less than 70 mg/dL with maximally tolerated statin therapy. This population also includes many patients who, in addition to not being able to meet their LDL-C lowering goal, often have elevated triglyceride levels and may benefit in reduction of both their elevated LDL-C and TG from gemcabene. Gemphire estimates that approximately 10 million patients in the United States and 200 million patients in the rest of the world have a need for additional therapies to effectively and safely bring them closer to their LDL-C and triglyceride lowering goals.

The HeFH patient population is generally comprised of individuals who have one defective gene that leads to elevated LDL-C levels at or above 190 mg/dL. These patients are prone to premature cardiovascular events. The incidence of patients with HeFH is estimated to be approximately one in 200 to one in 500, and, accordingly, Gemphire estimates there are approximately 0.5 to 1.5 million patients with HeFH in the United States and 15 to 30 million in the rest of the world.

Currently approved treatments for both ASCVD and HeFH include statins, ezetimibe, bile acid sequestrants, niacin, fibrates and injectable PCSK9 inhibitors. While these drugs have demonstrated efficacy in lipid-lowering in this population, they do not sufficiently address the patients with mixed dyslipidemia who need to lower both LDL-C and triglycerides.

Gemphire believes that there is a meaningful number of underserved ASCVD/HeFH patients who are: (1) unable to reach LDL-C and triglyceride goals on maximally tolerated statin therapy; (2) require LDL-C reduction beyond the 6% reduction observed when statin dose is doubled; or (3) unable to tolerate higher doses of statins. Nonetheless, if gemcabene were to be approved for ASCVD/HeFH, it may potentially offer patients, especially cardiometabolic patients, a preferred well-tolerated combination therapy with a statin and/or ezetimibe that is convenient, oral, once-daily, cost effective, and impacts multiple factors, LDL-C, hsCRP and triglycerides, that all add to the residual cardiovascular risk in these patients.

**Cardiovascular Outcomes Trials**

Gemphire believes it is well accepted that every 1.6 mg/dL lowering of LDL-C results in a 1% lowering of cardiovascular disease risk. The FDA has not required any approved therapy targeting LDL-C lowering, including non-statin therapies, to initiate or complete a cardiovascular outcomes trial in connection with its approval of HoFH, HeFH and ASCVD therapies. Based on recent drug approvals, Gemphire believes it is unlikely that the FDA will require the completion of a cardiovascular outcomes trial for any of the listed indications for gemcabene, although one may be appropriate for illustration in high-risk ASCVD patients with mixed dyslipidemia, prior to NDA filing to pursue broader label indications related to cardiovascular disease risk reduction, if pursued. Notwithstanding its current expectations, the FDA could require the initiation or completion of a cardiovascular outcomes trial as a condition to filing or approving an NDA for gemcabene.

**Gemcabene Chemistry, Manufacturing and Controls (CMC)**

Gemcabene is a small molecule drug candidate that can be synthesized as a single polymorph crystalline monocalcium salt, using readily available raw materials and based on conventional chemical processes.

Gemphire does not own or operate, and has not had plans to establish, any manufacturing facilities. Gemphire relies on contract manufacturers to produce both the drug substance and drug product required for its preclinical studies and clinical trials. All of its contract manufacturers have updated cGMP certificates and all of Gemphire's drug products are being manufactured under current good manufacturing practices (cGMP), a quality system regulating CMC activities.

Since 2015, Gemphire has continuously manufactured Gemcabene Immediate Release (IR) tablets under cGMP to support all on-going clinical trials. More specifically, drug substance and drug product manufacturing process and analytical method development have been optimized and updated based on ICH/FDA guidelines. In addition, Gemphire has successfully manufactured multiple strengths of tablets under cGMP: 150mg, 300mg, and 600mg strengths. Gemphire has obtained updated solid stability data for both the drug substance and drug product. Gemphire has been planning and evaluating its CMC strategies on the initiation of NDA registration batches.

Gemphire's contract manufacturers have been producing, and could produce in the future, its bulk drug substance and drug product for use in its preclinical studies and clinical trials on a purchase order basis. Gemphire has no long-term arrangements. Gemphire has continually sought to identify and qualify any alternative API and drug product manufacturers to ensure future commercial supplies, if ever needed. Gemphire has been expecting to continue to rely upon contract manufacturers and, potentially, collaboration partners to manufacture commercial quantities of its drug substances and drug product candidates, if approved for marketing by the applicable regulatory authorities.

**Pfizer License Agreement Related to Gemcabene**

In August 2018, Gemphire entered into an Amended and Restated License Agreement with Pfizer (the "Pfizer Agreement"), which amended and restated in full Gemphire's prior license agreement with Pfizer dated April 16, 2011.

Gemphire agreed to make milestone payments totaling up to $37 million upon the achievement of certain milestones, including the first new drug application (or its foreign equivalent) in any country, regulatory approval in each of the United States, Europe and Japan, the first anniversary of the first regulatory approval in any country, and upon achieving certain aggregate sales levels of gemcabene. Future milestone payments under the Pfizer Agreement, if any, would not be expected to begin for at least several years and extend over a number of subsequent years.

In partial exchange for the rights granted by Pfizer under the prior license agreement, Gemphire agreed to issue shares of its common stock to Pfizer representing 15% of Gemphire's fully diluted capital at the close of its first arms-length Series A financing, which occurred on March 31, 2015.

Gemphire has also agreed to pay Pfizer tiered royalties on a country-by-country basis based upon the annual amount of net sales as specified in the Pfizer Agreement until the later of: (i) five years after the first commercial sale in such country; (ii) the expiration of all regulatory or data exclusivity for gemcabene in such country; and (iii) the expiration or abandonment of the last valid claim of the licensed patents, including any patent term extensions or supplemental protection certificates in such country. The royalty rates range from the high single digits to the mid-teens depending on the level of net sales. The royalty rates are subject to reduction during certain periods when therapeutically-equivalent generic products represent a certain market share of prescription volume in the country. Under the Pfizer Agreement, Gemphire is obligated to use commercially reasonable efforts to develop and commercialize gemcabene.

The Pfizer Agreement will expire upon expiration of the last royalty term. On expiration (but not earlier termination), Gemphire will have a perpetual, exclusive, fully paid-up, royalty-free license under the licensed patent rights and related data to make, use, develop, commercialize, import and otherwise exploit the clinical product candidate gemcabene. Either party may terminate the Pfizer Agreement for

the other party's material breach following a cure period or immediately upon certain insolvency events relating to the other party. Pfizer may immediately terminate the Pfizer Agreement in the event that (i) Gemphire or any of its affiliates or sublicenses contests or challenges, or supports or assists any third party to contest or challenge, Pfizer's ownership of or rights in, or the validity, enforceability or scope of any of the patents licensed under the Pfizer Agreement or (ii) Gemphire or any of its affiliates or sublicensees fails to achieve the first commercial sale in at least one country by April 16, 2024.

**License Agreement with Beijing SL**

On July 23, 2019, Gemphire entered into the Beijing SL License Agreement pursuant to which Gemphire granted Beijing SL an exclusive royalty-bearing license to research, develop, manufacture and commercialize pharmaceutical products comprising, as an active ingredient, gemcabene in mainland China, Hong Kong, Macau and Taiwan (each, a "region," and collectively, the "Territory"). Gemphire retains all rights to gemcabene outside of the Territory. The parties have agreed to collaborate with respect to development and commercialization activities under the Beijing SL License Agreement through a joint steering committee composed of an equal number of representatives of Beijing SL and Gemphire.

Under the terms of the Beijing SL License Agreement, Beijing SL will be responsible, at its expense, for developing and commercializing products containing gemcabene (each, a "Licensed Product") in the Territory, with certain assistance from Gemphire. To the extent mutually agreed to in writing, Gemphire and Beijing SL will collaborate on the Phase 3 clinical trial for HoFH or other clinical trials with Gemphire as the sponsor designed to enroll patients both inside and outside the Territory (a "Global Study"), but Beijing SL will be responsible, at its expense, for the conduct of any Global Study to the extent solely in the Territory, subject to Gemphire's final decision making authority, and Gemphire will be responsible, at its expense, for the conduct of any Global Study to the extent solely outside of the Territory. Under a territory development plan, the parties shall develop Licensed Products with respect to the Territory. Beijing SL will be responsible for development activities, including non-clinical and clinical studies directed at obtaining regulatory approval of the Licensed Product in the Territory. Beijing SL has agreed to use commercially reasonable efforts to commercialize the Licensed Products for each indication that receives regulatory approval in the Territory and shall prepare and present a commercialization plan that shall be subject to approval by the joint steering committee.

Pursuant to the Beijing SL License Agreement, Beijing SL made an upfront gross payment of $2.5 million to Gemphire. Additionally, with respect to each Licensed Product, Gemphire will be eligible to receive (i) payments for specified developmental and regulatory milestones (including submission of a new drug application to China's National Medical Product Administration, dosing of the first patient in a phase 3 clinical trial in mainland China and regulatory approval for the first and each additional indication of a Licensed Product in the Territory) totaling up to $6 million in the aggregate and (ii) payments for specified global net sales milestones of up to $20 million in the aggregate multiplied by the ratio of the net sales of a Licensed Product sold by Beijing SL in the Territory divided by the global net sales of a Licensed Product, which net sales milestone payments are payable once, upon the first achievement of such milestone.

Beijing SL will also be obligated to pay Gemphire tiered royalties ranging from the mid-teens to twenty percent on the net sales of all Licensed Products in the Territory until the latest of (a) the date on which any applicable regulatory exclusivity with respect to such Licensed Product expires in such region, (b) the expiration or abandonment of the last valid patent claim or joint patent claim covering such Licensed Product in each region and (c) the fifth anniversary of the first commercial sale of such Licensed Product in such region (the "Beijing SL Royalty Term"). Future milestone payments under the Beijing SL License Agreement, if any, are not expected to begin for at least one year and will

extend over a number of subsequent years. Gemphire cannot determine the date on which Beijing SL's potential royalty payment obligations to Gemphire would expire because Beijing SL has not yet developed any Licensed Products under the License Agreement and therefore Gemphire cannot at this time identify the date of the first commercial sale or the periods of any regulatory exclusivity or patent claims with respect to any Licensed Product.

On a Licensed Product-by-Licensed Product and region-by-region basis upon the expiration of the Beijing SL Royalty Term, the license granted to Beijing SL shall be deemed perpetual, fully paid-up and royalty free with respect to such Licensed Product in such region. Either party may terminate the Beijing SL License Agreement (x) with written notice for the other party's material breach following a cure period or (y) if the other party becomes subject to certain insolvency proceedings. In addition, Gemphire may terminate the Beijing SL License Agreement in its entirety if Beijing SL or its affiliates or sublicensees commence a proceeding challenging the validity, enforceability or scope of any of Gemphire's patents.

To the extent rights granted to Beijing SL under the Beijing SL License Agreement are controlled by Gemphire pursuant to the Pfizer Agreement, such rights are subject to the terms and conditions of such agreement, and Beijing SL has agreed to comply with such terms and conditions.

The Beijing SL License Agreement contemplates that Beijing SL and Gemphire shall, no later than 60 days following the effective date of the Beijing SL License Agreement, negotiate in good faith and execute a clinical supply agreement and, no later than twelve months prior to the anticipated date of the first commercial sale of a Licensed Product, if any, negotiate in good faith and execute a commercial supply agreement, pursuant to which Beijing SL shall purchase from Gemphire, and Gemphire shall use commercially reasonable efforts to supply, gemcabene or Licensed Product for clinical or commercial purposes, as applicable, until manufacturing and regulatory transfers are complete.

Each of Gemphire and Beijing SL has agreed to indemnify the other party against certain losses and expenses relating to the development or commercialization of a Licensed Product by the indemnifying party, the negligence or willful misconduct of the indemnifying party or its directors, officers, employees or agents or a breach of the indemnifying party's representations, warranties or covenants.

Gemphire has also considered exploring other regional out-licensing or partnership opportunities.

**Intellectual Property**

Gemphire's patent estate includes patents and/or patent applications to forms of gemcabene, methods of using gemcabene, and methods of manufacturing gemcabene. The patent estate includes patents licensed from Pfizer and additional patents and applications that have been filed subsequent to obtaining the license that are entirely owned by Gemphire. Charles Bisgaier, a co-founder of Gemphire, is an inventor on thirteen of the pending fourteen patent families. As of August 2019, Gemphire's patent estate, including patents Gemphire owns or licenses from third parties, on a worldwide basis, included 48 issued patents and 94 pending patent applications for gemcabene in the United States and internationally directed to formulations, compositions, methods of use and methods of manufacturing. Gemphire has both issued and pending patents in foreign jurisdictions including Argentina, Australia, Brazil, Canada, China, Europe, Hong Kong, India, Israel, Japan, Mexico, New Zealand, Philippines, Korea, Russia, Singapore, South Africa, Taiwan and Thailand.

U.S. Patent number 6,861,555, which was in-licensed from Pfizer, includes claims directed to the calcium salt crystal form of gemcabene that is used in its clinical formulations and will constitute the commercial product as well as other crystalline forms of gemcabene. This patent is expected to expire in 2021; however, Gemphire could select this patent for patent term extension from the U.S. Patent and Trademark Office (USPTO) if such an extension is available. Given the expected length of the regulatory review, the expiry date of this patent could be adjusted to 2023, or possibly 2024. Furthermore, and importantly in its case, the FDA orphan designation for HoFH could provide it seven years of market exclusivity which would provide protection for gemcabene in the United States for treating HoFH out to about 2028 or 2029. Related foreign patents, which have issued in jurisdictions including Canada, Denmark, Finland, France, Germany, Great Britain, Ireland, Italy, the Netherlands, Sweden, Spain and Japan, are expected to expire in 2021, absent any adjustments or extensions.

U.S. Patent Number 8,557,835, which was also in-licensed from Pfizer, includes claims directed to pharmaceutical compositions comprised of combinations of gemcabene or gemcabene with statins, and methods of using the combinations, in a patient that does not reach sufficient LDL-C lowering on a statin alone. E.g., for treating several conditions including hyperlipidemia. This patent is expected to expire in 2021, absent any extension. All related foreign patents are now expired.

U.S. Patent No. 8,846,761, which is owned by Gemphire, includes claims directed to methods of reducing risk of pancreatitis for patients with TG³ 500 mg/dL with gemcabene treatment. This patent is expected to expire in 2032, absent any extension. Foreign patents have issued in Australia, Canada, Japan, Mexico and Europe. The European patent was validated into 21 European countries and foreign counterpart patent applications are pending in China, Europe, Hong Kong and Mexico, and any patents issuing from such applications are expected to expire in 2031, absent any adjustments or extensions.

U.S. Patent No. 10,028,926, which is owned by Gemphire is directed to treating patients on a stable dose, or a maximal dose, of statin to lower their LDL-C levels. This application is granted in Australia, Japan and Mexico, and related patent applications are pending in foreign jurisdictions including Canada, China, Europe, Japan and United States. Any patent that may issue in this family, absent any patent term adjustment or extension, is expected to expire in 2033.

U.S. Patent No. 10,227,285 which is owned by Gemphire, is directed to methods of large-scale manufacturing for making dicarboxyalkyl ethers. Foreign counterpart patent applications are pending in Australia, Brazil, Canada, China, Europe, Hong Kong, India, Israel, Japan, Mexico, New Zealand, Korea, Russia, Singapore and South Africa. Any patent issuing from this patent family is expected to expire in 2035.

U.S. patent application number 15/971,491, is a continuation of PCT/US2016/060849, which is owned by Gemphire and is directed to fixed dose combinations and modified release formulations of gemcabene and statins. Foreign counterpart patent applications are pending in Australia, Brazil, Canada, China, Europe, Hong Kong, India, Israel, Japan, Mexico, New Zealand, Korea, Russia, Singapore and South Africa. Any patent issuing from this patent family is expected to expire in 2035.

Two U.S. patent applications were filed as continuations of PCT/US2016/060837 and one as a divisional. U.S. patent application number 15/416,911, now U.S. 9,849,104, is directed to methods of treating NASH by administering gemcabene as a monotherapy, U.S. Patent Application Number 15/424,620, is directed methods for treating Mixed Dyslipidemia by administering gemcabene and a statin, and divisional U.S. Patent Application Number 15/814,118 directed to other aspects of NASH. Any patent that may issue in either of these two families, absent any patent term adjustment or extension, is expected to expire in 2036. Foreign counterpart patent applications are pending in Australia, Brazil, Canada, China, Europe, Hong Kong, India, Israel, Japan, Mexico, New Zealand, Philippines, Korea, Russia, Singapore, South Africa and Thailand.

U.S. patent application number 15/445,118, is a continuation of PCT/US2017/019750, which is owned by Gemphire and directed to the treatment of patients with HoFH on stable, lipid lowering therapy. Foreign counterpart patent applications are pending in Australia, Brazil, Canada, China, Europe, Hong Kong, India, Israel, Japan, Mexico, New Zealand, Philippines, Korea, Russia, Singapore, South Africa and Thailand. Any patent issuing from this patent family is expected to expire in 2037.

U.S. patent application number 15/956,172, was parallel filed with PCT/US2018/028113, which is directed to a composition and method of use of gemcabene. Foreign counterpart patent applications are pending in Argentina and Taiwan. Any patent issuing from this patent family is expected to expire in 2038.

U.S. patent application number 15/977,226, was parallel filed with PCT/US2018/032351, which is directed to a composition and method of use of gemcabene. Foreign counterpart patent applications are pending in Argentina and Taiwan. Any patent issuing from this patent family is expected to expire in 2038.

U.S. patent application number 15/956,232, was filed as a continuation-in-part of U.S. patent application number 15/445,118 which is directed to treatment of patients with familial hypercholesterolemia on lipid-lowering therapy. Any patent issuing from this patent is expected to expire in 2037.

In 2018, Gemphire also filed U.S. provisional patent applications 62/747,375 and 62/767,079 directed to composition of matter and methods of synthesis which are pending. Additionally, Gemphire filed a PCT application (PCT/US2018/021093) directed to the treatment of obesity symptoms. As background, the patent term is typically 20 years from the date of filing a non-provisional application. In the United States, a patent's term may be lengthened several ways. First, patent term adjustment (PTA) compensates a patentee for administrative delays by the USPTO in granting a patent. Second, in certain instances, a patent term extension (PTE) can be granted to recapture a portion of the term effectively lost as a result of the FDA regulatory review period, as provided under the Drug Price Competition and Patent Term Restoration Act of 1984, referred to as the Hatch-Waxman Act. This restoration period cannot be longer than five years for approval of a drug compound, and the total patent term, including the restoration period, must not exceed 14 years following FDA approval. Only one patent applicable to an approved drug is eligible for the PTE and the application for the extension must be submitted prior to the expiration of the patent and within 60 days from market approval. Independent of patent protection, in the United States, the Hatch-Waxman Act provides a five-year period of non-patent data exclusivity within the United States to the first applicant to gain approval of an NDA for a new chemical entity (NCE). Under this provision, gemcabene may be eligible for up to five years of data and market exclusivity under the Hatch-Waxman Act, because it is considered a NCE because the FDA has not previously approved any other drug containing the active ingredient of gemcabene. In Europe, under the Data Exclusivity Directive, pharmaceutical companies may receive up to 11 years to market their product without risk of competition. In Japan, under the Pharmaceuticals Act of Japan, the market authorization holder, based on the length of a required study period reexamination, may have up to 10 years before a generic can enter the market.

**Competition**

The cardiometabolic therapeutics industry is highly competitive and subject to rapid and significant innovation and change. The market for lipid regulating therapies is especially large and competitive. For Gemphire's product candidate, gemcabene, potential competitors include large pharmaceutical and biopharmaceutical companies, specialty pharmaceutical and generic drug companies, academic institutions, government agencies and research institutions. Gemcabene, if approved, would face intense competition. Key competitive factors affecting its commercial success will include efficacy, safety, tolerability, reliability, convenience of dosing, price and reimbursement. Although there are currently

no approved therapies for NASH, the market for NASH is continuing to evolve with many drug candidates in late stage development.

Statins are the most commonly used therapy to lower LDL-C in the dyslipidemia market. They are used by patients with HoFH as well as HeFH and ASCVD. Branded statins include AstraZeneca's Crestor (rosuvastatin), Merck's Zocor (simvastatin) and Pfizer's Lipitor (atorvastatin) among others. Generic statins are marketed by several companies including Apotex Inc., Mylan N.V. (Mylan), Dr. Reddy's Laboratories Ltd. and Lupin Pharmaceuticals, Inc. (Lupin) among others.

Non-statin based therapies are also used to lower LDL-C in dyslipidemia patients. Merck's Zetia (ezetimibe) is a common non-statin therapy that is often combined with statins for HoFH, HeFH and ASCVD patients. Merck's Vytorin and Liptruzet are fixed-dose combination therapies that combine ezetimibe with statins. Non-statin therapies are combined with statins to improve LDL-C lowering or to offer other efficacy benefits, including Daiichi Sankyo Inc.'s (Daiichi Sankyo) Welchol, a bile acid sequestrant and niacin. Non-statin therapies are also used to treat HoFH. These therapies include Aegerion's Juxtapid, a once-daily oral microsomal triglyceride transfer protein (MTP) inhibitor and Ionis and Genzyme Corporation's, a Sanofi Company (Genzyme), Kynamro, a once-weekly injectable apoB antisense therapy. These agents have boxed warnings associated with liver toxicity and significant tolerability issues on their labels. Amgen's Repatha, an injectable PCSK9 inhibitor, was approved for HoFH, HeFH and ASCVD, and Sanofi's and Regeneron's PCSK9 inhibitor, Praluent, was approved for HeFH and ASCVD.

There are multiple product candidates in late stage development for HoFH, HeFH and ASCVD. Regeneron's evinacumab (Phase 3) is in development for the treatment of HoFH. For hypercholesterolemia, including HeFH and ASCVD, drugs in development include Amgen/Dezima's TA-8995 (Phase 2), Esperion's oral product, Bempedoic Acid (Phase 3), The Medicines Company/Alnylam Pharmaceuticals, Inc.'s (Alnylam) injectable PCSK9 inhibitor, ALN-PCSsc (Phase 3), and Eli Lilly's injectable PCSK9 inhibitor, LY3015014 (Phase 2).

For severe hypertriglyceridemia, fibrates, niacin and prescription fish oil are common therapies used to lower triglycerides. Examples of branded fibrates include AbbVie Inc.'s (AbbVie) Tricor and Trilipix, and an example of a branded niacin includes AbbVie's Niaspan, an extended-release niacin. In addition, AbbVie markets combination therapies, such as Advicor (niacin extended release and lovastatin) and Simcor (niacin extended release and simvastatin). Prescribed generic versions of fibrates, such as gemfibrozil, are manufactured by many companies including Impax Laboratories, Inc. (Impax), Teva Pharmaceutical Industries Ltd. (Teva), Mylan and Lupin among others. Generic versions of niacins are manufactured by many companies including Teva, Lupin and Zydus Pharmaceuticals (USA), Inc., among others. Commonly used prescription fish oils include GlaxoSmithKline plc's (GlaxoSmithKline) Lovaza, AstraZeneca's Epanova and Amarin's Vascepa. Recently Amarin's Vascepa proved successful in a completed a Phase 3 cardiovascular outcomes trial named PREVENT-IT for treating hypertriglyceridemia (patients with TGs >100 and less than 500 mg/dL). Amarin announced that they plan to file an NDA with the FDA for this indication.

Currently there are currently no approved therapies for NASH and older medications are written off label to treat the disease. There are currently more than thirty assets in various stages of development for NASH. Several drug candidates are in late stage development and may be approved for the NASH indication as soon as 2019/2020: OCALIVA (Obeticholic Acid) (FXR Agonist) being developed by Intercept Pharmaceuticals, Inc., Elafibranor (PPAR Agonist) being developed by Genfit SA, Selonsertib (formerly GS-4997) (ASK-1 Inhibitor) being developed by Gilead Sciences, Inc., GS-0976 (ACC Inhibitor) being developed by Gilead Sciences, Inc., Cenicriviroc (CVC) (CCR2/CCR5 Inhibitor) being developed by Tobira Therapeutics, Inc. (a wholly-owned subsidiary of Allergan plc), Emricasan (Caspase Inhibitor) being developed by Conatus Pharmaceuticals Inc., Aramchol (Synthetic Fatty Acid/Bile Acid Conjugate) being developed by Galmed, GR-MD-02 (Galectin-3 Inhibitor) being

developed by Galectin Therapeutics, and MGL-3196 (THR Agonist) being developed by Madrigal. Recently, Intercept Pharmaceuticals, Inc., announced that obeticholic acid achieved statistically significant improvement in liver fibrosis without worsening of NASH in a Phase 3 study and that it intends to file for regulatory approval in the U.S. and Europe in the second half of 2019.

**Government Regulation**

Government authorities at the federal, state and local level in the United States and in other countries extensively regulate, among other things, the research, development, testing, manufacture (including any manufacturing changes), packaging, storage, recordkeeping, labeling, advertising, promotion, distribution, marketing, post-approval monitoring and reporting, import and export of pharmaceutical products, such as those Gemphire is developing.

***United States—FDA Regulation***

*FDA Approval Process*

In the United States, pharmaceutical products are subject to extensive regulation by the FDA. The Federal Food, Drug and Cosmetic Act (FDC Act) and other federal and state statutes and regulations, govern, among other things, the research, development, testing, manufacture, storage, recordkeeping, approval, labeling, promotion and marketing, distribution, post-approval monitoring and reporting, sampling, and import and export of pharmaceutical products. Failure to comply with applicable U.S. requirements may subject a company to a variety of administrative or judicial sanctions by the FDA, including FDA refusal to approve pending New Drug Applications (NDAs), partial or full clinical holds, warning or untitled letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, civil penalties and criminal prosecution.

Pharmaceutical product development for a new product or certain changes to an approved product in the United States typically involves preclinical laboratory and animal tests, the submission of an Investigational New Drug (IND) application to the FDA, which must become effective before clinical trials may commence, and adequate and well-controlled clinical trials to establish the safety and effectiveness of the drug for each indication for which FDA approval is sought. Satisfaction of FDA pre-market approval requirements typically takes many years and the actual time required may vary substantially based upon the type, complexity and novelty of the product or disease.

Preclinical studies include laboratory evaluation of product chemistry, formulation and toxicity, as well as animal trials to assess the characteristics and potential safety and efficacy of the product. The conduct of the preclinical studies must comply with federal regulations and requirements, including good laboratory practices, or GLP. The results of preclinical studies are submitted to the FDA as part of an IND application along with other information, including product chemistry, manufacturing and controls, available clinical data, and a proposed clinical trial protocol. Long-term preclinical studies, such as animal tests of reproductive toxicity and carcinogenicity, may continue after the IND is submitted.

Once the IND is submitted, the sponsor must wait 30 calendar days before initiating any clinical trials. During this time, FDA has an opportunity to review the IND for safety to assure that research subjects will not be subjected to unreasonable risk, unless before that time the FDA raises concerns or questions and places the trial on clinical hold. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin.

Clinical trials involve the administration of the investigational new drug to healthy volunteers or patients under the supervision of a qualified investigator. Clinical trials must be conducted: (1) in compliance with federal regulations; (2) in compliance with good clinical practice (GCP), an international standard meant to protect the rights and health of patients and to define the roles of

clinical trial sponsors, administrators and monitors, and (3) under protocols detailing the objectives of the trial, the parameters to be used in monitoring safety, and the effectiveness criteria to be evaluated. Each protocol involving testing on U.S. patients and subsequent protocol amendments must be submitted to the FDA as part of the IND.

The FDA may order the temporary or permanent discontinuation of a clinical trial at any time or impose other sanctions if the FDA believes that the clinical trial is either not being conducted in accordance with FDA requirements or presents an unacceptable risk to the clinical trial patients. The clinical trial protocol and informed consent information for patients in clinical trials must also be submitted to an Institutional Review Board (IRB) for approval. An IRB must operate in compliance with FDA regulations. An IRB may also require the clinical trial at the site to be halted, either temporarily or permanently, for failure to comply with the IRB's requirements or may impose other conditions.

Clinical trials to support NDAs for marketing approval are typically conducted in three sequential phases, but the phases may overlap.

- Phase 1 trials: The drug is initially introduced into healthy volunteers or patients, with the target disease or condition. The drug is tested to assess metabolism, pharmacokinetics, pharmacological actions, side effects associated with increasing doses, and, if possible, early evidence of effectiveness.

- Phase 2 trials: The drug is administered to a limited patient population to determine the effectiveness of the drug for a particular indication, dosage tolerance, optimum dosage and to identify common adverse effects and safety risks.

- Phase 3 trials: If the drug demonstrates evidence of effectiveness and an acceptable safety profile in Phase 2 trials, Phase 3 trials, including registration trials, are undertaken to obtain additional information about clinical efficacy and safety in a larger number of patients, typically at geographically dispersed clinical trial sites, to permit the FDA to evaluate the overall benefit-risk relationship of the drug and to provide adequate information for the labeling of the drug. In most cases, the FDA requires two adequate and well-controlled Phase 3 registration trials to demonstrate the efficacy of the drug. A single Phase 3 registration trial with other confirmatory evidence may be sufficient in rare instances where the study is a large multicenter trial demonstrating internal consistency and a statistically very persuasive finding of a clinically meaningful effect on mortality, irreversible morbidity or prevention of a disease with a potentially serious outcome and confirmation of the result in a second trial would be practically or ethically impossible.

After completion of the required clinical trials, an NDA is prepared and submitted to the FDA for approval, which is required before marketing of the product may begin in the United States. The NDA must include, among other things, the results of all preclinical studies, clinical trials and other testing, a compilation of data relating to the product's pharmacology, chemistry, manufacture and controls, and the proposed product labeling. The cost of preparing and submitting an NDA is substantial. The submission of most NDAs is additionally subject to a substantial application user fee and the manufacturer and/or applicant under an approved NDA are also subject to annual product and establishment user fees.

The FDA has 60 days from its receipt of an NDA to determine whether the application will be accepted for filing based on the FDA's threshold determination that it is sufficiently complete to permit substantive review. Once the submission is accepted for filing, the FDA begins an in-depth review. The FDA has agreed to certain performance goals in the review of new drug applications. Most such applications for standard review drug products are reviewed within ten to twelve months; most applications for priority review drugs are reviewed within six months. Priority review can be applied to

drugs that the FDA determines offer major advances in treatment, diagnosis, or prevention of diseases or provide a treatment where no adequate therapy exists. For biologics, priority review is further limited only for drugs intended to treat a serious or life-threatening disease relative to the currently approved products. The review process for both standard and priority review may be extended by the FDA for three additional months to consider certain late-submitted information, or information intended to clarify information already provided in the submission.

The FDA may also refer applications for novel drug products, or drug products that present difficult questions of safety or efficacy, to an advisory committee—typically a panel that includes clinicians and other experts—for review, evaluation and a recommendation as to whether the application should be approved. The FDA is not bound by the recommendation of an advisory committee, but it generally follows such recommendations. Before approving an NDA, the FDA will typically inspect one or more clinical sites to assure compliance with GCP. Additionally, the FDA will inspect the facility or the facilities at which the drug is manufactured. The FDA will not approve the product unless it is satisfactorily compliant with cGMP standards and the NDA contains data that provide substantial evidence that the drug is safe and effective in the indication studied.

After the FDA evaluates the NDA and the manufacturing facilities, it issues either an approval letter or a complete response letter. A complete response letter generally outlines the deficiencies in the submission and may require substantial additional testing, or information, in order for the FDA to reconsider the application. If, or when, those deficiencies have been addressed to the FDA's satisfaction in a resubmission of the NDA, the FDA will issue an approval letter. The FDA has committed to reviewing such resubmissions in two or six months depending on the type of information included.

An approval letter authorizes commercial marketing of the drug with specific prescribing information for specific indications. Even if the FDA approves a product, it may limit the approved indications for use for the product, require that contraindications, warnings or precautions be included in the product labeling, or require that post-approval studies, including Phase 4 clinical trials, be conducted to further assess a drug's safety after approval. As a condition of NDA approval, the FDA may also require a Risk Evaluation and Mitigation Strategy (REMS) to help ensure that the benefits of the drug outweigh the potential risks. REMS can include medication guides, communication plans for healthcare professionals, and Elements To Assure Safe Use (ETASU). Elements to assure safe use can include, but are not limited to, special training or certification for prescribing or dispensing, dispensing only under certain circumstances, special monitoring, and the use of patient registries. The requirement for a REMS can materially affect the potential market and profitability of the drug. Moreover, product approval may require substantial post-approval testing and surveillance to monitor the drug's safety or efficacy. Once granted, product approvals may be withdrawn if compliance with regulatory standards is not maintained or problems are identified following initial marketing.

Changes to some of the conditions established in an approved application, including changes in indications, labeling, or manufacturing processes or facilities, require submission and FDA approval of a new NDA or NDA supplement before the change can be implemented. An NDA supplement for a new indication typically requires clinical data similar to that in the original application, and the FDA uses the same procedures and actions in reviewing NDA supplements as it does in reviewing NDAs.

*Fast Track Designation and Accelerated Approval*

The FDA is required to facilitate the development, and expedite the review, of drugs that are intended for the treatment of a serious or life-threatening disease or condition for which there is no effective treatment and which demonstrate the potential to address unmet medical needs for the condition. Under the fast track program, the sponsor of a new product candidate may request that the FDA designate the product candidate for a specific indication as a fast track drug concurrent with, or

after, the filing of the IND for the product candidate. The FDA must determine if the product candidate qualifies for fast track designation within 60 days of receipt of the sponsor's request.

Under the fast track program and the FDA's accelerated approval regulations, the FDA may approve a drug for a serious or life-threatening illness that provides meaningful therapeutic benefit to patients over existing treatments based upon a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments.

In clinical trials, a surrogate endpoint is a measurement of laboratory or clinical signs of a disease or condition that substitutes for a direct measurement of how a patient feels, functions, or survives. Surrogate endpoints can often be measured more easily or more rapidly than clinical endpoints. A product candidate approved on this basis is subject to rigorous post-marketing compliance requirements, including the completion of Phase 4 or post-approval clinical trials to confirm the effect on the clinical endpoint. Failure to conduct required post-approval studies or confirm a clinical benefit during post-marketing studies, will allow FDA to withdraw the drug from the market on an expedited basis. All promotional materials for product candidates approved under accelerated regulations are subject to prior review by FDA.

In addition to other benefits such as the ability to use surrogate endpoints and engage in more frequent interactions with the FDA, the FDA may initiate review of sections of a fast track drug's NDA before the application is complete. This rolling review is available if the applicant provides, and the FDA approves, a schedule for the submission of the remaining information and the applicant pays applicable user fees. However, the FDA's time period goal for reviewing an application does not begin until the last section of the NDA is submitted. Additionally, the fast track designation may be withdrawn by the FDA if the FDA believes that the designation is no longer supported by data emerging in the clinical trial process.

*Breakthrough Therapy Designation*

The FDA is also required to expedite the development and review of the application for approval of drugs that are intended to treat a serious or life-threatening disease or condition where preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints. Under the breakthrough therapy program, the sponsor of a new product candidate may request that the FDA designate the product candidate for a specific indication as a breakthrough therapy concurrent with, or after, the filing of the IND for the product candidate. The FDA must determine if the product candidate qualifies for breakthrough therapy designation within 60 days of receipt of the sponsor's request. The FDA must take certain actions, such as holding timely meetings and providing advice, intended to expedite the development and review of an application for approval of a breakthrough therapy. Even if a product qualifies for this program, the FDA may later decide that the product no longer meets the conditions for qualification.

*Orphan Drugs*

Under the Orphan Drug Act, the FDA may grant orphan drug designation to drugs intended to treat a rare disease or condition—generally a disease or condition that affects fewer than 200,000 individuals in the U.S. Orphan Drug Designation must be requested before submitting an NDA. After the FDA grants orphan drug designation, the generic identity of the drug and its potential orphan use are disclosed publicly by the FDA. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process. The first NDA applicant to receive

FDA approval for a particular active ingredient to treat a particular disease with FDA orphan drug designation is entitled to a seven-year exclusive marketing period in the United States for that product, for that indication. During the seven-year exclusivity period, the FDA may not approve any other applications to market the same drug for the same disease, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity. Orphan drug exclusivity does not prevent the FDA from approving a different drug for the same disease or condition, or the same drug for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the NDA application user fee.

*Pediatric Information*

Under the Pediatric Research Equity Act (PREA), NDAs or supplements to NDAs must contain data to assess the safety and effectiveness of the drug for the claimed indications in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the drug is safe and effective. The FDA may grant full or partial waivers for submission of data, as well as deferrals for several reasons, including a finding that the drug is ready for approval for use in adults before pediatric studies are complete or that additional safety or effectiveness data needs to be collected before the pediatric studies begin. Unless otherwise required by regulation, PREA does not apply to any drug for an indication for which orphan designation has been granted.

The Best Pharmaceuticals for Children Act (BPCA) provides NDA holders a six-month extension of any exclusivity—patent or non-patent—for a drug if certain conditions are met. Conditions for exclusivity include the FDA's determination that information relating to the use of a new drug in the pediatric population may produce health benefits in that population, the FDA making a written request for pediatric studies, and the applicant agreeing to perform, and reporting on, the requested studies within the statutory timeframe. Applications under the BPCA are treated as priority applications, with all of the benefits that designation confers.

*Special Protocol Assessment*

A company may reach an agreement with the FDA under the Special Protocol Assessment (SPA) process as to the required design and size of clinical trials intended to form the primary basis of an efficacy claim and adequately addresses scientific and regulatory requirements indicating concurrence by FDA with the adequacy and acceptability to support the ability of a future submitted application to meet regulatory requirements for approval. Under the FDC Act and FDA guidance implementing the statutory requirement, an SPA is generally binding upon the FDA except in limited circumstances, such as if the FDA identifies a substantial scientific issue essential to determining safety or efficacy after the clinical trial begins, public health concerns emerge that were unrecognized at the time of the protocol assessment, the sponsor and FDA agree to the change in writing, or if the clinical trial sponsor fails to follow the protocol that was agreed upon with the FDA.

*Disclosure of Clinical Trial Information*

Sponsors of clinical trials of FDA-regulated products, including drugs, are required to register and disclose certain clinical trial information. Information related to the product, patient population, phase of investigation, clinical trial sites and investigators, and other aspects of the clinical trial is then made public as part of the registration. Sponsors are also obligated to discuss the results of their clinical trials after completion. Disclosure of the results of these trials can be delayed until the new product or new indication being studied has been approved. Competitors may use this publicly-available information to gain knowledge regarding the progress of development programs.

*Post-Approval Requirements*

Once an NDA is approved, a product will be subject to certain post-approval requirements. For instance, the FDA closely regulates the post-approval marketing and promotion of drugs, including standards and regulations for direct-to-consumer advertising, off-label promotion, industry-sponsored scientific and educational activities and promotional activities involving the internet. Drugs may be marketed only for the approved indications and in accordance with the provisions of the approved labeling.

Adverse Event (AE) reporting and submission of periodic reports is required following FDA approval of an NDA. The FDA also may require post-marketing testing, known as Phase 4 testing, REMS and surveillance to monitor the effects of an approved product, or the FDA may place conditions on an approval that could restrict the distribution or use of the product. In addition, quality-control, drug manufacture, packaging and labeling procedures must continue to conform to cGMPs after approval. Drug manufacturers and certain of their subcontractors are required to register their establishments with the FDA and certain state agencies. Registration with the FDA subjects entities to periodic unannounced inspections by the FDA, during which the FDA inspects manufacturing facilities to assess compliance with cGMPs. Accordingly, manufacturers must continue to expend time, money and effort in the areas of production and quality-control to maintain compliance with cGMPs. Regulatory authorities may withdraw product approvals or request product recalls if a company fails to comply with regulatory standards, if it encounters problems following initial marketing, or if previously unrecognized problems are subsequently discovered.

***The Hatch-Waxman Amendments***

*Orange Book Listing*

In seeking approval for a drug through an NDA, applicants are required to list with the FDA each patent whose claims cover the applicant's product. Upon approval of a drug, each of the patents listed in the application for the drug is then published in the FDA's Approved Drug Products with Therapeutic Equivalence Evaluations, commonly known as the Orange Book. Drugs listed in the Orange Book can, in turn, be cited by potential generic competitors in support of approval of an Abbreviated New Drug Application (ANDA). An ANDA provides for marketing of a drug product that has the same active ingredient in the same strength, route of administration and dosage form as the Reference Listed Drug and has been shown to be bioequivalent to the Reference Listed Drug. Other than the requirement for bioequivalence testing, ANDA applicants are not required to conduct, or submit results of, preclinical studies or clinical trials to prove the safety or effectiveness of their drug product. Drugs approved in this way are commonly referred to as "generic equivalents" to the Reference Listed Drug, and can often be substituted by pharmacists under prescriptions written for the original Reference Listed Drug.

The ANDA applicant is required to certify to the FDA concerning any patents listed for the approved product in the FDA's Orange Book. Specifically, the applicant must certify that: (1) the required patent information has not been filed; (2) the listed patent has expired; (3) the listed patent has not expired, but will expire on a particular date and approval is sought after patent expiration; or (4) the listed patent is invalid or will not be infringed by the new product. The ANDA applicant may also elect to submit a section viii statement certifying that its proposed ANDA label does not contain (or carves out) any language regarding the patented method-of-use rather than certify to a listed method-of-use patent. If the applicant does not challenge the listed patents, the ANDA application will not be approved until all the listed patents claiming the referenced product have expired.

A certification that the new product will not infringe the already approved product's listed patents, or that such patents are invalid, is called a Paragraph IV certification. If the ANDA applicant has provided a Paragraph IV certification to the FDA, the applicant must also send notice of the

Paragraph IV certification to the NDA and patent holders once the ANDA has been accepted for filing by the FDA. The NDA and patent holders may then initiate a patent infringement lawsuit in response to the notice of the Paragraph IV certification. The filing of a patent infringement lawsuit within 45 days of the receipt of a Paragraph IV certification automatically prevents the FDA from approving the ANDA until the earlier of 30 months, expiration of the patent, settlement of the lawsuit, or a decision in the infringement case that is favorable to the ANDA applicant.

The ANDA application also will not be approved until any applicable non-patent exclusivity listed in the Orange Book for the referenced product has expired.

*Exclusivity*

Upon NDA approval of a drug containing a New Chemical Entity (NCE), which is a drug substance that contains an active moiety that has not been approved by the FDA in any other NDA, that moiety will receive five years of marketing exclusivity during which the FDA cannot approve any ANDA seeking approval of a generic version of that moiety. Certain changes to a drug, such as the addition of a new indication to the package insert, may receive a three-year period of exclusivity during which the FDA cannot approve an ANDA for a generic drug that includes the change.

If no Paragraph IV certification is made, an ANDA may not be filed until expiry of the NCE exclusivity period, however, if a Paragraph IV certification is filed, the ANDA may be submitted one year before the NCE exclusivity period expires. If there is no listed patent in the Orange Book, there may not be a Paragraph IV certification, and, thus, no ANDA may be filed before the expiration of the exclusivity period.

*Patent Term Extension*

After NDA approval, owners of relevant drug patents may apply for up to a five year patent extension. The allowable patent term extension is calculated as half of the drug's testing phase —the time between IND application and NDA submission—and all of the review phase—the time between NDA submission and approval up to a maximum of five years. The time can be shortened if the FDA determines that the applicant did not pursue approval with due diligence. The extension may not extend the patent beyond 14 years from market approval.

For patents that might expire during the application phase, the patent owner may request an interim patent extension. An interim patent extension increases the patent term by one year and may be renewed up to four times. For each interim patent extension granted, the post-approval patent extension is reduced by one year. The director of the USPTO must determine that approval of the drug covered by the patent for which a patent extension is being sought is likely. Interim patent extensions are not available for a drug for which an NDA has not been submitted.

*Prescription Drug Marketing Act*

As part of the sales and marketing process, pharmaceutical companies frequently provide samples of approved drugs to physicians. The Prescription Drug Marketing Act (PDMA) imposes requirements and limitations upon the provision of drug samples to physicians, as well as prohibits states from licensing distributors of prescription drugs unless the state licensing program meets certain federal guidelines that include minimum standards for storage, handling and record keeping. In addition, the PDMA sets forth civil and criminal penalties for violations.

***United States—Anti-Kickback, False Claims Laws and Other Healthcare Laws***

In addition to FDA restrictions on marketing of pharmaceutical products, several other types of state and federal laws have been applied to restrict certain general business and marketing practices in

the pharmaceutical industry in recent years. These laws include anti-kickback statutes, false claims statutes and other statutes pertaining to health care fraud and abuse.

The federal Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting or receiving remuneration to induce, or in return for, purchasing, leasing, ordering or arranging for the purchase, lease or order of any healthcare item or service reimbursable under Medicare, Medicaid, or other federally financed healthcare programs. The Patient Protection and Affordable Care Act as amended by the Health Care and Education Reconciliation Act (PPACA) amended the intent element of the federal Anti-Kickback Statute so that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it in order to be in violation. This statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on the one hand and prescribers, purchasers and formulary managers on the other. Although there are a number of statutory exemptions and regulatory safe harbors protecting certain common activities from prosecution or other regulatory sanctions, the exemptions and safe harbors are drawn narrowly, and practices that involve remuneration intended to induce prescribing, purchases, or recommendations may be subject to scrutiny if they do not qualify for an exemption or safe harbor. Violations of the Anti-Kickback Statute are punishable by penalties including imprisonment, criminal fines, civil monetary penalties, damages, disgorgement and exclusion from participation in federal healthcare programs.

Federal false claims laws, including the civil False Claims Act, prohibit any person or entity from knowingly presenting, or causing to be presented, a false claim for payment to the federal government, or knowingly making, or causing to be made, a false statement to have a false claim paid. This includes claims made to programs where the federal government reimburses, such as Medicaid, as well as programs where the federal government is a direct purchaser, such as when it purchases off the Federal Supply Schedule. Recently, several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly inflating drug prices they report to pricing services, which in turn were used by the government to set Medicare and Medicaid reimbursement rates, and for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. In addition, certain marketing practices, including off-label promotion, may also violate false claims laws. Additionally, PPACA amended the federal Anti-Kickback Statute such that a violation of that statute can serve as a basis for liability under the federal civil False Claims Act. The majority of states also have statutes or regulations similar to the federal Anti-Kickback Statute and False Claims Act, which apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor.

Other federal statutes pertaining to healthcare fraud and abuse include the Civil Monetary Penalties Statute, which prohibits the offer or payment of remuneration to a Medicaid or Medicare beneficiary that the offeror/payor knows or should know is likely to influence the beneficiary to order a receive a reimbursable item or service from a particular supplier, and the healthcare fraud provisions of the Health Insurance Portability and Accountability Act of 1996 (HIPAA), which prohibits knowingly and willfully executing or attempting to execute a scheme to defraud any healthcare benefit program or obtain by means of false or fraudulent pretenses, representations, or promises any money or property owned by or under the control of any healthcare benefit program in connection with the delivery of or payment for healthcare benefits, items, or services.

For example, several pharmaceutical and other healthcare companies have been prosecuted under these laws for, among other things, allegedly inflating drug prices they report to pricing services, which in turn were used by the government to set Medicare and Medicaid reimbursement rates, and for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. In addition, certain marketing practices undertaken by pharmaceutical companies, including off-label promotion, may violate false claims laws.

Pursuant to PPACA, the Centers for Medicare & Medicaid Services (CMS) has issued a final rule that requires manufacturers of certain prescription drugs, devices, biologics, and medical supplies for which payment is available under Medicare, Medicaid, or the Children's Health Insurance Program, with specific exceptions, to collect and report information on payments or transfers of value to physicians and teaching hospitals, as well as investment interests held by physicians and their immediate family members. The first reports were due in 2014 and must be submitted on an annual basis. The reported data were posted by CMS in searchable form on a public website on September 30, 2014 and will be posted on an annual basis. Failure to submit required information may result in civil monetary penalties.

In addition, several states now require prescription drug companies to report expenses relating to the marketing and promotion of drug products and to report gifts and payments to individual physicians in these states. Other states prohibit various other marketing-related activities. Still other states require the posting of information relating to clinical studies and their outcomes. In addition, California, Connecticut, Nevada and Massachusetts require pharmaceutical companies to implement compliance programs and/or marketing codes. Several additional states are considering similar proposals.

Compliance with these laws is difficult and time consuming, and companies that do not comply with these state laws may face civil penalties.

Other federal and state requirements include the following:

- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act (the HITECH Act) and its implementing regulations, which imposes obligations, including mandatory contractual terms, on certain people and entities with respect to safeguarding the privacy, security and transmission of individually identifiable health information; and

- State and foreign laws also govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

***United States Healthcare Reform***

Current and future legislative proposals to further reform healthcare or reduce healthcare costs may result in lower reimbursement for its products. The cost containment measures that payors and providers are instituting and the effect of any healthcare reform initiative implemented in the future could significantly reduce its revenues from the sale of its products.

For example, in March 2010, PPACA was signed into law. PPACA has begun to, and will likely continue to, substantially change healthcare financing and delivery by both governmental and private insurers, and significantly impact the pharmaceutical industry. The PPACA, among other things: established an annual, nondeductible fee on any entity that manufactures or imports certain specified branded prescription drugs and biologic agents; revised the methodology by which rebates owed by manufacturers to the state and federal government for covered outpatient drugs under the Medicaid Drug Rebate Program are calculated; increased the minimum Medicaid rebates owed by most manufacturers under the Medicaid Drug Rebate Program; extended the Medicaid Drug Rebate program to utilization of prescriptions of individuals enrolled in Medicaid managed care organizations; implemented a new Medicare Part D coverage gap discount program; expanded the entities eligible for discounts under the Public Health Services pharmaceutical pricing program; created a new Patient Centered Outcomes Research Institute; and provided incentives to programs that increase the federal government's comparative effectiveness research.

In addition, other legislative changes have been proposed and adopted since the PPACA was enacted. In August 2011, President Obama signed into law the Budget Control Act of 2011, which,

among other things, created the Joint Select Committee on Deficit Reduction to recommend to Congress proposals in spending reductions. The Joint Select Committee did not achieve a targeted deficit reduction of at least $1.2 trillion for the years 2012 through 2021, triggering the legislation's automatic reduction to several government programs. This includes reductions to Medicare payments to providers of 2% per fiscal year, which went into effect in April 2013 and will remain in effect through 2025 unless additional Congressional action is taken. Additionally, in January 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, reduced Medicare payments to several providers and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Additional state and federal healthcare reform measures may be adopted in the future, including the possible repeal and replacement of PPACA and related legislation, regulations and programs. Any new state and federal healthcare reform measures could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in reduced demand for Gemphire's products or additional pricing pressure. Gemphire is unsure of the ways in which PPACA will continue to be challenged, repealed, amended or replaced in the months and years to come.

***Review and Approval of Drug Products in the European Union***

In order to market any product outside of the United States, a company must also comply with numerous and varying regulatory requirements of other countries and jurisdictions regarding quality, safety and efficacy and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of drug products. Whether or not it obtains FDA approval for a product, Gemphire would need to obtain the necessary approvals by the comparable foreign regulatory authorities before it can commence clinical trials or marketing of the product in those countries or jurisdictions. The approval process ultimately varies between countries and jurisdictions and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries and jurisdictions might differ from and be longer than that required to obtain FDA approval. Regulatory approval in one country or jurisdiction does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country or jurisdiction may negatively impact the regulatory process in others.

Pursuant to the European Clinical Trials Directive, a system for the approval of clinical trials in the European Union has been implemented through national legislation of the member states. Under this system, an applicant must obtain approval from the competent national authority of a European Union member state in which the clinical trial is to be conducted. Furthermore, the applicant may only start a clinical trial after a competent ethics committee has issued a favorable opinion. Clinical trial application must be accompanied by an investigational medicinal product dossier with supporting information prescribed by the European Clinical Trials Directive and corresponding national laws of the member states and further detailed in applicable guidance documents.

To obtain marketing approval of a drug under European Union regulatory systems, an applicant must submit a marketing authorization application (MAA) either under a centralized or decentralized procedure.

The centralized procedure provides for the grant of a single marketing authorization by the European Commission that is valid for all European Union member states. The centralized procedure is compulsory for specific products, including for medicines produced by certain biotechnological processes, products designated as orphan medicinal products, advanced therapy products and products with a new active substance indicated for the treatment of certain diseases. For products with a new active substance indicated for the treatment of other diseases and products that are highly innovative or for which a centralized process is in the interest of patients, the centralized procedure may be optional.

Under the centralized procedure, the Committee for Medicinal Products for Human Use, or the CHMP, established at the European Medicines Agency (EMA) is responsible for conducting the initial assessment of a drug. The CHMP is also responsible for several post-authorization and maintenance activities, such as the assessment of modifications or extensions to an existing marketing authorization. Under the centralized procedure in the European Union, the maximum timeframe for the evaluation of an MAA is 210 days, excluding clock stops, when additional information or written or oral explanation is to be provided by the applicant in response to questions of the CHMP. Accelerated evaluation might be granted by the CHMP in exceptional cases, when a medicinal product is of major interest from the point of view of public health and in particular from the viewpoint of therapeutic innovation. In this circumstance, the EMA ensures that the opinion of the CHMP is given within 150 days.

The decentralized procedure is available to applicants who wish to market a product in various European Union member states where such product has not received marketing approval in any European Union member states before. The decentralized procedure provides for approval by one or more other, or concerned, member states of an assessment of an application performed by one member state designated by the applicant, known as the reference member state. Under this procedure, an applicant submits an application based on identical dossiers and related materials, including a draft summary of product characteristics, and draft labeling and package leaflet, to the reference member state and concerned member states. The reference member state prepares a draft assessment report and drafts of the related materials within 210 days after receipt of a valid application. Within 90 days of receiving the reference member state's assessment report and related materials, each concerned member state must decide whether to approve the assessment report and related materials.

If a member state cannot approve the assessment report and related materials on the grounds of potential serious risk to public health, the disputed points are subject to a dispute resolution mechanism and may eventually be referred to the European Commission, whose decision is binding on all member states.

***Data and Market Exclusivity in the European Union***

In the European Union, NCEs qualify for eight years of data exclusivity upon marketing authorization and an additional two years of market exclusivity. This data exclusivity, if granted, prevents regulatory authorities in the European Union from referencing the innovator's data to assess a generic (abbreviated) application for eight years, after which generic marketing authorization can be submitted, and the innovator's data may be referenced, but not approved for two years. The overall ten-year period will be extended to a maximum of eleven years if, during the first eight years of those ten years, the marketing authorization (MA) holder obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to their authorization, are held to bring a significant clinical benefit in comparison with existing therapies. Even if a compound is considered to be a NCE and the sponsor is able to gain the prescribed period of data exclusivity, another company nevertheless could also market another version of the drug if such company can complete a full MAA with a complete database of pharmaceutical test, preclinical studies and clinical trials and obtain marketing approval of its product.

***Data and Market Exclusivity in Japan***

Japan has no established system for data exclusivity or marketing exclusivity. However, the Pharmaceuticals Act of Japan (PAA) provides for a re-examination system after drug approval. This system imposes an obligation on the MA holder to continue to collect clinical data after market approval during a study period. The MA holder must apply for reexamination to the Minster of Health Labor and Welfare within three months of the expiration of the study period. During the study and reexamination period no generic drug may be approved, effectively providing a form of market exclusivity. The study period is determined by the drug category. The study period for an orphan drug

is 10 years from MA, the study period for an NCE is eight years from MA, and for an improvement (new indication, formulation, etc.) the study period is four to six years from MA.

***Patent Term Extension in Japan***

The term of a patent that covers the approved drug may be extended for the shorter of five years, or the period during which the patent could not be worked (exploited) due to obtaining regulatory approval. This period is calculated from the later of the patent registration date (grant date) or the clinical trial start date to the regulatory approval date.

***Regulatory Exclusivity in China***

China has a six-year regulatory exclusivity period for NCE and Orphan drugs, such as gemcabene, which begins at the date of market approval.

***Foreign Regulation***

In order to market any product outside of the United States, Gemphire would need to comply with numerous and varying regulatory requirements of other countries regarding safety and efficacy and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of its products. Whether or not Gemphire obtains FDA approval for a product, Gemphire would need to obtain the necessary approvals by the comparable regulatory authorities of foreign countries before Gemphire can commence clinical trials or marketing of the product in those countries. The approval process varies from country to country and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries might differ from and be longer than that required to obtain FDA approval. Regulatory approval in one country does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country may negatively impact the regulatory process in others.

***Pharmaceutical Coverage, Pricing and Reimbursement***

Significant uncertainty exists as to the coverage and reimbursement status of any drug products for which Gemphire obtains regulatory approval. Sales of any of its product candidates, if approved, will depend, in part, on the extent to which the costs of the products will be covered by third-party payors, including government health programs such as Medicare and Medicaid, commercial health insurers and managed care organizations. The process for determining whether a payor will provide coverage for a drug product may be separate from the process for setting the price or reimbursement rate that the payor will pay for the drug product once coverage is approved. Third-party payors may limit coverage to specific drug products on an approved list, or formulary, which might not include all of the approved drugs for a particular indication.

In order to secure coverage and adequate reimbursement for any product that might be approved for sale, Gemphire would need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of the product, in addition to the costs required to obtain FDA or other comparable regulatory approvals. Its product candidates may not be considered medically necessary or cost-effective. A payor's decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Further, one payor's determination to provide coverage for a drug product does not assure that other payors will also provide coverage or adequate reimbursement for the drug product. Third-party reimbursement may not be sufficient to enable it to maintain price levels high enough to realize an appropriate return on its investment in product development.

The containment of healthcare costs has become a priority of federal, state and foreign governments, and the prices of drugs have been a focus in this effort. Third-party payors are

increasingly challenging the prices charged for medical products and services and examining the medical necessity and cost-effectiveness of medical products and services, in addition to their safety and efficacy. If these third-party payors do not consider its products to be cost-effective compared to other available therapies, they may not cover its products after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow it to sell its products at a profit. The U.S. government, state legislatures and foreign governments have shown significant interest in implementing cost containment programs to limit the growth of government-paid health care costs, including price controls, restrictions on reimbursement and requirements for substitution of generic products for branded prescription drugs. Adoption of such controls and measures and tightening of restrictive policies in jurisdictions with existing controls and measures, could limit payments for pharmaceuticals such as the product candidate that Gemphire has been developing and could adversely affect its net revenue and results.

Pricing and reimbursement schemes vary widely from country to country. Some countries provide that drug products may be marketed only after a reimbursement price has been agreed. Some countries may require the completion of additional studies that compare the cost-effectiveness of a particular product candidate to currently available therapies. For example, the European Union provides options for its member states to restrict the range of drug products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. European Union member states may approve a specific price for a drug product or may instead adopt a system of direct or indirect controls on the profitability of Gemphire placing the drug product on the market. Other member states allow companies to fix their own prices for drug products but monitor and control company profits. The downward pressure on health care costs in general, particularly prescription drugs, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert competitive pressure that may reduce pricing within a country. There can be no assurance that any country that has price controls or reimbursement limitations for drug products will allow favorable reimbursement and pricing arrangements for any of Gemphire's products.

The marketability of any products for which Gemphire might receive regulatory approval for commercial sale may suffer if the government and third-party payors fail to provide coverage and adequate reimbursement. In addition, the emphasis on managed care in the United States has increased and Gemphire expects will continue to increase the pressure on drug pricing. Coverage policies, third-party reimbursement rates and drug pricing regulation may change at any time. In particular, the PPACA contains provisions that may reduce the profitability of drug products, including, for example, increased rebates for drugs sold to Medicaid programs, extension of Medicaid rebates to Medicaid managed care plans, mandatory discounts for certain Medicare Part D beneficiaries and annual fees based on pharmaceutical companies' share of sales to federal health care programs. Even if favorable coverage status and adequate reimbursement level status are obtained for one or more products for which Gemphire could receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

**Employees**

As of September 30, 2019, Gemphire had seven employees, all of whom are full-time, three of whom hold Ph.D. or M.D. degrees, four of whom were engaged in research and development activities and three of whom were engaged in business development, finance, information systems, facilities, human resources or administrative support. None of its employees are represented by a labor union or subject to a collective bargaining agreement. Gemphire considers its relationship with its employees to be good.

**Corporate Information**

Gemphire was formed in Michigan as Michigan Life Therapeutics, LLC (MLT) in November 2008. In October 2014, Gemphire incorporated a new entity under the name Gemphire Therapeutics Inc. in Delaware. MLT then merged with and into Gemphire, with Gemphire as the surviving entity. The purpose of the merger was to change the jurisdiction of its incorporation from Michigan to Delaware and to convert from a limited liability company to a corporation. Its principal executive offices are located at P.O. Box 130235, Ann Arbor, Michigan 48113, and its telephone number is (734) 245-1700. Its corporate website address is www.gemphire.com.

**Available Information**

You may obtain free copies of Gemphire's Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, and amendments to those reports, as soon as reasonably practicable after they are electronically filed or furnished to the SEC, on Gemphire's website at www.gemphire.com or by contacting Gemphire at (734) 245-1700. The SEC maintains an internet site that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC at www.sec.gov. The inclusion of any website address in this proxy statement/prospectus/information statement is an inactive textual reference only, and information contained on or accessible through these websites is not a part of this proxy statement/prospectus/information statement.

**Properties**

Gemphire currently maintains a mailing address at P.O. Box 13023, Ann Arbor, MI 48113. Gemphire previously leased a facility in Livonia, Michigan, but did not renew such lease upon its expiration on August 31, 2019. Gemphire does not believe it will need to own or lease new office space at any time prior to consummation of the merger in order to carry out its plan of operations described herein.

**Legal Proceedings**

From time to time, Gemphire may be involved in various claims and legal proceedings relating to claims arising out of its operations. Gemphire is not currently a party to any legal proceeding that, in the opinion of its management, is likely to have a material adverse effect on its business. Regardless of outcome, litigation can have an adverse impact on Gemphire because of defense and settlement costs, diversion of management resources and other factors.

## NEUROBO BUSINESS

### Overview

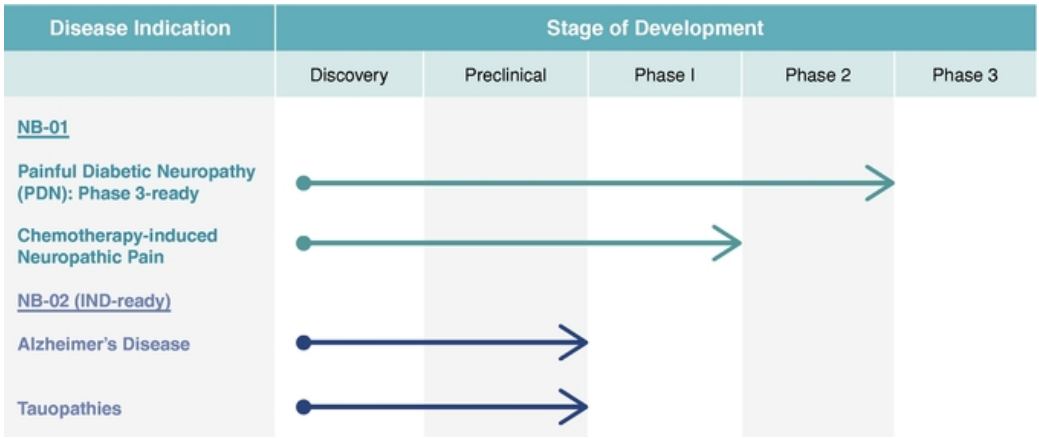
NeuroBo Pharmaceuticals, Inc. is a clinical-stage biotechnology company focused on developing novel pharmaceuticals to treat neurodegenerative disorders affecting millions of patients worldwide. NeuroBo is focused on the development of a treatment for painful diabetic neuropathy (PDN), with its lead product candidate, NB-01, expected to commence Phase 3 clinical development as a first-line pain management therapy for PDN in the first quarter of 2020. NeuroBo believes that NB-01 could also treat a range of neuropathic conditions, including chemotherapy-induced peripheral neuropathy and post-traumatic peripheral neuropathy. NeuroBo's second product candidate, NB-02, has the potential to treat the symptoms of cognitive impairment and modify the progression of neurodegenerative diseases associated with the misfunction of a protein called tau, and with amyloid beta plaque deposition. NB-02 is ready for the submission of an investigational new drug application, or IND, to the Food and Drug Administration, or FDA. NeuroBo believes that leveraging the therapeutic advantages of its pipeline will drive a paradigm shift in the treatment of PDN, peripheral neuropathy and other neurodegenerative diseases.

NeuroBo was established in July 2017 to advance NB-01 and NB-02, which were originally developed by the South Korean pharmaceutical company Dong-A ST. NB-01 has been in-licensed by NeuroBo from Dong-A ST for exclusive worldwide rights except for South Korea. NB-01 has successfully completed two Phase 2 proof-of-concept clinical trials. NeuroBo acquired NB-02 from Dong-A ST, and NeuroBo holds the full worldwide commercial rights for NB-02. The foundation of NeuroBo's current platform is a mechanism-based approach to address multi-target diseases such as neuropathic pain and neurodegeneration. This approach will be implemented by directing multi-component natural drugs toward specific pathways that are implicated in neuropathic pain and neurodegeration.

The global neuropathic pain market is currently estimated to be more than $5.4 billion and is projected to grow to more than $10 billion by 2026. Products to address PDN make up about 60% of the market, and products to address indications such as chemotherapy-induced and post-traumatic neuropathic pain are estimated to constitute an additional 20% of the market. In the U.S., there are currently only three FDA-approved treatments for PDN. The market is characterized by significant unmet need, with more than 50 percent of patients not adequately responding to first-line therapy and patients experiencing significant side effects with existing approved therapies. NeuroBo believes that NB-01 has the potential to offer pain alleviation with minimal side effects and be potentially the first disease-modifying therapy by impacting the underlying disease mechanisms.

NeuroBo's second drug candidate, NB-02, has shown considerable promise as a neuroprotective agent in preclinical studies, demonstrating a multimodal mechanism of action including inhibition of tau phosphorylation, acetylcholinesterase (AChE) inhibition, inhibition of Ab toxicity and amyloid plaque formation, and anti-inflammatory effects. NeuroBo intends to further leverage the benefits of tau modulation by NB-02 in conjunction with the other pathway effects to explore treatment of certain tauopathy indications. NB-02 is currently IND-ready.

The chart below summarizes NeuroBo's current pipeline and disease indications that may be addressed by NeuroBo's platform:




**NeuroBo's Product Candidates**

***NB-01***

NB-01, NeuroBo's lead drug candidate, is a novel therapeutic that has been studied in a 128-subject Phase 2 clinical trial conducted in the United States. NeuroBo is working with Syneos Health, a global contract research organization, to initiate its Phase 3 development program for NB-01 in the first quarter of 2020.

In extensive preclinical studies performed in mice and rats, NB-01 has shown multiple mechanistic and therapeutic effects. NB-01 addresses a range of mechanisms that contribute to neuropathic pain and nerve degeneration in diabetic and other peripheral neuropathies. These include a decrease in key inflammatory markers, restoration of nerve growth factor (NGF) to normal levels, and reduction of advanced glycation end products (AGEs). Inflammation is a central factor in pain generation and other peripheral neurodegenerative diseases. NB-01 reduces levels of TNF-a and IL-6, both of which are markers of inflammation. NB-01 also reduces AGEs, which are implicated in diabetes-related complications. AGE inhibitors have been clinically tested as potential treatments for these complications. NB-01 also restores the neurotrophin NGF, which is involved in nerve growth, maintenance and repair. NB-01 has been shown in animal models to alleviate symptoms of PDN, and the Phase 3 trial of NB-01 will study a drug candidate that has multiple disease-modifying mechanisms of action.

***NB-02***

NeuroBo's second product candidate is NB-02, which is in development for the symptomatic and disease modifying treatment of neurodegenerative diseases, including Alzheimer's disease and tauopathies. In preclinical studies, NeuroBo has observed the mechanisms of action of NB-02 to include inhibition of tau phosphorylation, acetylcholinesterase (AChE) inhibition, inhibition of Ab toxicity and amyloid plaque formation, and anti-inflammatory effects.

Specifically, in both *in vitro* and *in vivo* models, NB-02 has demonstrated inhibition of AChE, as is the case with three of the current drugs on the market to treat the symptoms of Alzheimer's disease. It has also demonstrated inhibition of tau phosporylation and of amyloid plaque formation, both mechanisms believed to contribute to the progression of neurodegenerative diseases.

**Strategy**

NeuroBo's goal is to discover, develop and commercialize novel therapeutics for the treatment of a broad range of neurodegenerative disorders with minimal side effects for the patient, a significantly unmet need in today's market. The key elements of NeuroBo's business strategy to achieve this goal include:

- Advance NB-01 through the FDA regulatory process to approval for the treatment of PDN. NeuroBo intends to explore various avenues to advance NB-01, including securing a pharmaceutical partner to advance work on a global Phase 3 program with NB-01 to achieve this goal.
- Position NB-01 as a well-differentiated treatment with strong potential to be a first-line therapy for PDN, with extension to other peripheral neuropathic conditions.
- Advance NB-02 through IND and initiation of human clinical trials. NB-02 is IND-ready, and NeuroBo anticipates initiating clinical development of this drug candidate in Alzheimer's disease.
- Extend the pipeline of drug indications by leveraging the potential of NB-01 and NB-02 in neurodegenerative diseases such as chemotherapy-induced neuropathic pain and tauopathies. As NeuroBo continues to build and develop its product portfolio, it may opportunistically pursue strategic partnerships that maximize the value of its pipeline.
- Continue to hire highly qualified management and personnel in advancing drug development, achieving marketing approval, and implementing its corporate growth strategy. NeuroBo's employee base has grown since January 2019 and it expects to further expand as it continues its clinical development programs and initiates new ones.

**NeuroBo's Novel Approach to Neurodegenerative Diseases**

***NB-01: Treatment of PDN and Peripheral Neuropathic Conditions***

*Background*

Based on third party research, the U.S. population with diabetes is estimated at 30.3 million people. At least half of these individuals will develop diabetic neuropathy, and up to 25% of those individuals will develop neuropathic pain. According to the industry intelligence firm GlobalData plc, as of 2018, the global PDN market was responsible for approximately $3.6 billion in annual sales, approximately $2.6 billion of which is concentrated in the U.S. The same source projects that the global PDN market will increase to approximately $7.1 billion in annual sales by 2026 with approximately $4.8 billion of such sales concentrated in the U.S.

The following drugs have been approved by the FDA for the treatment of PDN: pregabalin (Lyrica); duloxetine (Cymbalta) and tapentadol (Nucynta ER). Despite an established treatment protocol for PDN based on these approved therapeutics, the current treatment paradigm for patients suffers from numerous shortcomings as a result of their negative side effects associated with the available FDA-approved drug products. The first line of therapy typically consists of anti-epileptic drugs (AEDs) such as gabapentin and pregabalin, which are insufficient on their own in that they have been shown to exhibit only moderate efficacy accompanied by moderate to severe side effects such as somnolence and dizziness in some patients, and, even after drug treatment, 50 to 70 percent of patients still experience pain. If pain persists beyond treatment with AEDs, as it often does, the second line of therapy typically consists of prescriptions for anti-depressants (SNRIs and TCAs), which have been shown to reduce pain only by an additional 20 percent when added to AED treatment. Treatment with anti-depressants is also associated with significant drug-to-drug interactions. If pain persists beyond treatment with AEDs and anti-depressants, the third line of therapy typically consists of opiates, which are only appropriate as a short-term option and have been shown to exhibit potentially harmful

addictive and habit-forming side effects. A significant number of mortalities from drug overdose have been caused by opiates. Beyond the potential side effects, the existing approved therapies for PDN are burdened by additional safety and efficacy concerns.

*NB-01 Preclinical development*

Extensive and comprehensive preclinical pharmacology, safety and toxicology studies have been completed with NB-01, as detailed in the table below. Among the safety and toxicology studies completed are: (i) central nervous system (CNS), cardiovascular (CV), gastrointestinal (GI), and respiratory safety in rats, mice and dogs; (ii) a single-dose 13-week and 26-week oral toxicity study in rats; (iii) a single-dose 13-week and 26-week oral toxicity study in dogs; (iv) range-finding embryo fetal development studies in rats; and (v) fertility, pre-and post-natal studies in rats.

| Pharmacological and Toxicity Studies | |
|---|---|
| **Type of Study** | **Models Used** |
| CNS, CV, GI, Respiratory safety | Rats and mice, dogs for CV safety |
| Oral toxicity in rats | Single-dose, 13-week, 26-week toxicity in rats |
| Oral toxicity in dogs | 2-week, 13-week, 39-week toxicity in dogs |
| Embryo fetal development studies | Range-finding and development study in rats |
| Embryo fetal development studies | Range-finding and development study in rats |
| Fertility, pre- and post-natal studies | Rats |
| Bacterial reverse mutation, In vitro chromosomal aberration, mouse micronucleus, hERG assays | In vitro and mouse, as applicable |
| OCT 1/2, CYPs, UGTs | In vitro, human hepatocytes |
| PK studies of NB-01, Dioscin, Allantoin | In vivo rat studies |

In addition, in mechanism of action studies conducted by Dong-A ST, NB-01 induced nerve regeneration in streptozotocin (STZ)-induced and db/db diabetes mouse models with a significant increase in axon diameter and thickness of myelin sheath, returning thickness and diameter to almost the naturally occurring levels. Similar results were achieved in rat models, including the streptozotocin (STC) diabetes model. NGF has been shown to be lowered in diabetes and diabetic neuropathy animal models, and the administration of NB-01 in these models shows elevation of endogenous NGF to near-normal levels. Preclinical studies have demonstrated that NB-01 has a demonstrable impact on reduction of AGEs as well as inflammatory markers (TNF-alpha and interleukin-6) which are implicated in nerve degeneration in diabetes.

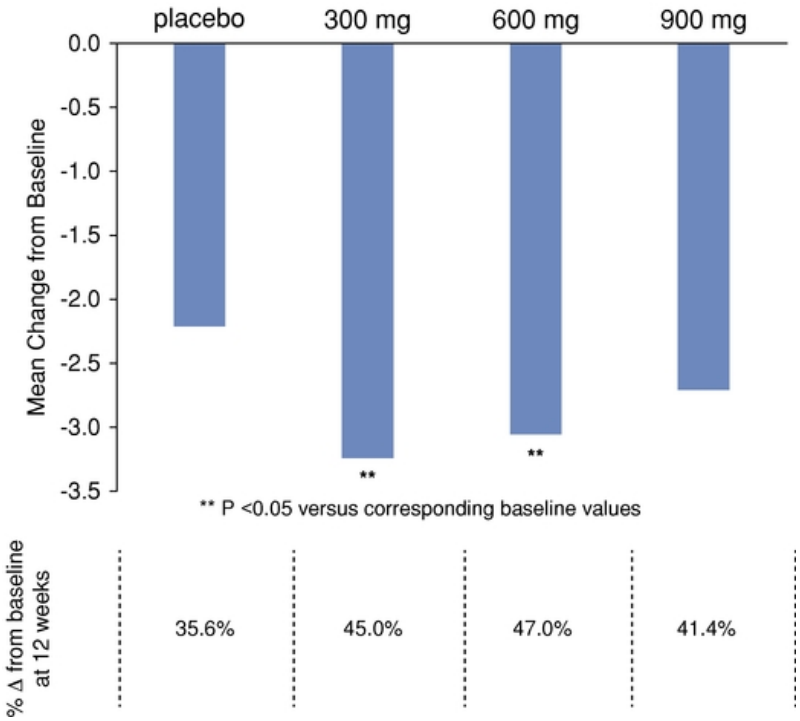
Additional studies have been completed on the effect of NB-01 on thermal and mechanical hyperalgesia in mouse models, including the STZ diabetes model and genetic (db/db) diabetes model. The data from these studies have demonstrated that NB-01 alleviates both thermal and mechanical hyperalgesia relative to the control.

With respect to additional neuropathic indications, NB-01 has also been studied for its effects on rat models of chemotherapy-induced neuropathic pain and chronic constriction injury (CCI). In these studies, NB-01 demonstrated an analgesic effect on rats, measured by threshold of paw pressure tolerance, during treatment with paclitaxel and with CCI. In both cases, the paw pressure threshold was significantly elevated following dosing with NB-01.

*Results of Phase 2 U.S. Clinical Trial for NB-01*

Measured as a change from baseline in NRS score over the course of 12 weeks, NB-01 was observed to be generally well tolerated in its Phase 2 study at doses ranging from 300 mg to 900 mg against placebo, as summarized in the table below.

Measured in terms of changes in the mean NRS score at week 12 in the Phase 2 study, patients treated with the 300 mg and 600 mg doses showed statistically significant improvement from baseline in pain scores. As summarized in the table below, patients treated with the 300 mg dose experienced an average 45 percent change from the baseline NRS score, and patients treated with the 600 mg dose experienced an average 47 percent change from the baseline NRS score.




***Mean Change in NRS Score at Week 12 Following NB-01 Dosing***

During the Phase 2 study, patients in each dose group experienced a number of adverse events, including nausea and pruritus, but not at a level higher than those of subjects who received placebo.

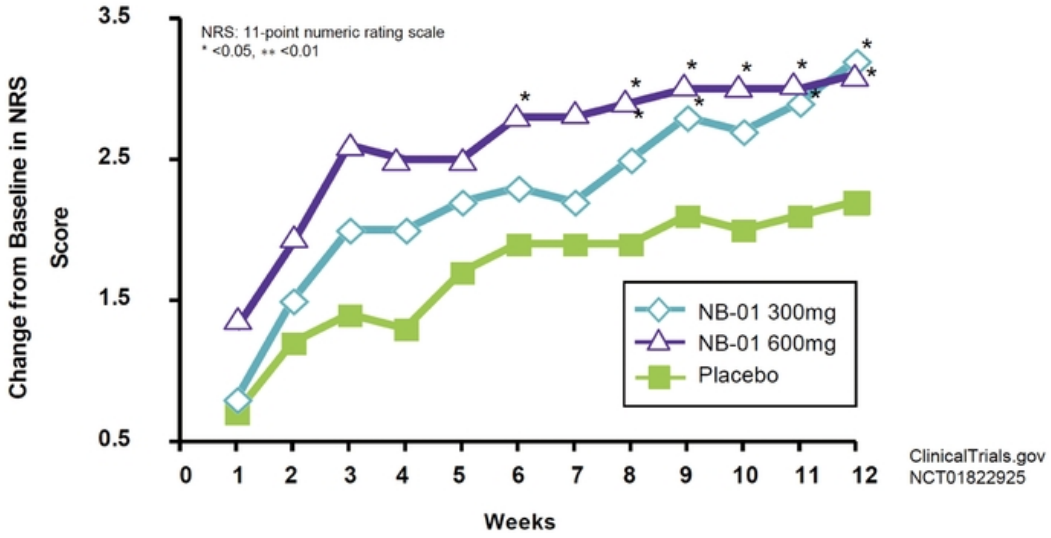
**NB-01 Phase 2 Clinical Development**

**Completed Phase 2 trial in Korea.** A 15-site, 128-subject, double blind, dose ranging, randomized, placebo-controlled Phase 2 trial to assess the efficacy and safety of NB-01 in the treatment of subjects with PDN has been completed in Korea. Three doses of NB-01 were evaluated versus placebo in 128 subjects (32 per dose group), administered daily for an 8-week treatment period. The treatment groups were placebo or one of NB-01 100 mg, 200 mg, or 300 mg, administered three times daily (TID), for a total daily NB-01 dose of 300 mg, 600 mg or 900 mg, respectively. The primary endpoint of the study was reduction in the average daily Pain Numerical Rating Scale (NRS) score from baseline

at 8 weeks. Secondary endpoints included percentage reduction in NRS at 8 weeks, Patient Global Impression of Improvement (PGI-I) scale, Clinical Global Impression of Severity, and change from baseline in the NRS based on a daily patient diary.

**Completed Phase 2 trial in the United States.** A 14-site, 128-subject, double blind, dose ranging, randomized, placebo-controlled Phase 2 trial to assess the efficacy and safety of NB-01 in the treatment of subjects with PDN has been completed in the United States. Three doses of NB-01 were evaluated versus placebo in 128 subjects (32 per dose group), administered daily for a 12-week treatment period. The treatment groups were placebo or one of NB-01 100 mg, 200 mg, or 300 mg, administered three times daily (TID) for a total daily NB-01 dose of 300 mg, 600 mg or 900 mg, respectively. The primary endpoint of the study was reduction in the clinic visit Pain Numerical Rating Scale (NRS) score at 12 weeks. Secondary endpoints included percentage reduction in clinic visit NRS score at 12 weeks, proportion of subjects with at least 30% improvement in the clinic visit pain NRS score, proportion of responders in the Patient Global Impression of Improvement (PGI-I) scale, and change from baseline in the NRS based on a daily patient diary.

**14 US sites, 128 subjects, 3 doses vs. placebo**
**(600mg and 300mg doses shown here)**




***Summary of Phase 2 Results for NB-01***

**NB-01 Phase 3 Trial Design**

NeuroBo currently expects that the Phase 3 clinical development plan for NB-01 will consist of three clinical trials, including two 12-week, double-blind, randomized, placebo-controlled clinical trials, with the initial trial planned to be conducted in the United States, and the second trial planned to be conducted internationally. NeuroBo anticipates that the treatment groups in the first trial will be NB-01 200 mg TID (total daily dose 600 mg) and matching placebo (TID), and in the second trial would be oral NB-01 200 mg TID (total daily dose 600 mg), NB-01 100 mg TID (total daily dose 300 mg) and matching placebo (TID). The primary endpoint for the double-blind efficacy studies will be the change from baseline in the weekly mean of the average daily pain score as measured using the 11-point (0-10) PI-NRS using an electronic diary. NeuroBo anticipates that the third trial would be a

long-term (12 month) safety study, involving up to approximately 1,000 to 1,100 trial participants. All subjects would be treated with oral NB-01 200 mg TID (600 mg/day).

**NB-01-301:** NB-01-301 is a randomized, double-blind, parallel group, placebo-controlled study designed to evaluate the efficacy, safety and tolerability of NB-01, in approximately 460 adult subjects in the United States with PDN with 12 weeks of treatment. The treatment groups in the planned Phase 3 clinical trial are oral NB-01 200 mg TID (total daily dose 600 mg) and matching placebo (TID). The primary endpoint for the planned double-blind Phase 3 study will be the change from baseline to Week 12 in the weekly mean of the average daily pain score as measured using the 11-point (0-10) PI-NRS using an electronic diary.

NeuroBo has retained Syneos Health, a global clinical research organization with recent experience in clinical trials for PDN, to conduct the planned Phase 3 clinical trial of NB-01. NeuroBo expects to screen the first subject for this trial in the first quarter of 2020, have the last subject complete the last study visit in the third quarter of 2021, and have study results available in the fourth quarter of 2021.

**NB-01-302:** The second clinical trial in the Phase 3 NB-01 clinical development program, NB-01-302, would consist of a randomized, double-blind, parallel group, placebo-controlled study to evaluate the efficacy, safety and tolerability of NB-01 in adult subjects with PDN with 12 weeks of treatment. Dosing arms and the primary endpoint would be as described above. This trial would enroll up to approximately 750 subjects in the rest of the world. NeuroBo anticipates that this trial would start following receipt of positive results from the NB-01-301 study.

**NB-01-303:** The third clinical trial in the Phase 3 NB-01 clinical development program, NB-01-303, would be an open label study to evaluate the long term safety, tolerability and efficacy of NB-01 in adult subjects with PDN. All subjects would receive NB-01 200 mg TID for a total daily dose of 600 mg for 52 weeks. This trial would enroll up to approximately 1,000 to 1,100 subjects globally. NeuroBo anticipates that this trial would start following receipt of positive results from the NB-01-301 study.

**NB-01 Development Plan through NDA**

NeuroBo expects to screen the first patient for NB-01-301 in the first quarter of 2020, with results expected to follow in the fourth quarter of 2021. NeuroBo expects that it will request a Type C meeting with the FDA, and obtain scientific advice from EMA, to ensure alignment of the NB-01 development program with the expectations of both agencies regarding the data that could be required for submission for marketing approval of NB-01 in PDN.

Any specialty or pharmacokinetic studies required to generate additional data requested by regulatory agencies will be conducted during execution of the Phase 3 program to ensure availability of data for inclusion in the submissions for approval. An initial analysis of the data from the open label Phase 3 safety study to date is planned to be conducted around the time of database lock for the second randomized Phase 3 study, and included in the submission packages.

**License Agreement**

***License Agreement with Dong-A ST for NB-01***

On January 18, 2018, NeuroBo entered into an exclusive license agreement with Dong-A ST, a leading pharmaceutical company specializing in discovery, development, manufacture and marketing of pharmaceutical products and biosimilars, which agreement was amended on April 18, 2018 and July 24, 2019. Dong-A ST is headquartered in Seoul, South Korea and listed on the Korean stock exchange. Under the terms of the agreement, NeuroBo obtained an exclusive, royalty-bearing, worldwide (except for the Republic of Korea) license to make, use, offer to sell, sell and import products covered by

certain Dong-A ST intellectual property rights in its proprietary compound designated as DA-9801 (NB-01). NeuroBo's license rights cover any and all applications and markets for the therapeutic, health, nutrition or well-being of humans. NeuroBo may grant sublicenses to any affiliate or third party. NeuroBo is responsible for all future patent prosecution costs.

Dong-A ST retained the exclusive right to conduct clinical studies in the Republic of Korea and sell products to end users in Korea. NeuroBo grants Dong-A ST an exclusive, royalty free right and license to use, solely for Dong-A ST's commercialization of products in Korea, any inventions, designs and technology developed by NeuroBo in its performance of the agreement. If Dong-A ST terminates the agreement due to a NeuroBo breach or bankruptcy event, then this technology is licensed exclusively to Dong-A ST at no charge. NeuroBo will also negotiate in good faith to supply product to Dong-A ST for clinical studies and sale of products to end-users in Korea under a separate supply agreement.

NeuroBo is obligated to use commercially reasonable efforts to develop products for use in each of the United States, the European Union, Japan and the People's Republic of China. If NeuroBo terminates, discontinues or suspends, for longer than 12 months, the development of any product listed as a product under development in any development plan provided to Dong-A ST (other than for reasons of force majeure or requirements of applicable law), then NeuroBo is deemed in breach of this development obligation, and Dong-A ST may terminate for cause after a 60 day cure period. NeuroBo is obligated to use commercially reasonable efforts to commercialize products worldwide throughout the term of the agreement.

In connection with obtaining the licenses NeuroBo paid Dong-A ST total consideration of $2.3 million consisting of a one-time upfront license fee and shares of NeuroBo common stock.

NeuroBo may be required to pay development milestone payments of up to an aggregate of $98 million, related to publication of Phase 3 clinical trial data, the first NDA submission in any country, and NDA approval in the United States, the European Union, Japan and the People's Republic of China. NeuroBo may also be required to pay sales milestone payments in a specified amount, related to the first time that aggregate net sales of products exceed specified amounts in a calendar year.

NeuroBo is required to pay Dong-A ST commercial milestone payments of up to an aggregate of $80 million and a royalty between a single digit and a low double digit percentage of net sales of products. The royalty rate increases as annual net sales increase.

The term of the agreement continues on a country-by country and product-by-product basis until the later of the 12$^{th}$ anniversary of the first commercial sale of such product in such country or expiration or termination of the last valid claim within the patent rights covering the product. The royalty rate is then reduced by 30% in any country that prohibits the payment of royalties on a patent license beyond the expiration or invalidation of the last valid claim covering the product.

Each of Dong-A ST and NeuroBo may terminate the agreement if the other party is in material breach of the agreement and has not cured or started to cure the breach within 60 days of notice of such breach, or is subject to a bankruptcy or insolvency event. NeuroBo may terminate the agreement at any time upon 90 days written notice.

NeuroBo may assign its rights under the agreement in connection with a merger, consolidation, or sale of substantially all of its assets, with prior written notice to Dong-A ST, and if the successor entity agrees in writing to be bound by the agreement.

***Acquisition of NB-02 from Dong-A ST***

NeuroBo acquired NB-02 from Dong-A ST on January 18, 2018. NeuroBo has full worldwide rights to all disease indications for NB-02 from the asset acquisition and does not have further obligations in future payments to Dong-A ST however; if NeuroBo wishes to sell products using NB-02 in the Republic of South Korea, Dong-A is entitled to certain notice rights and rights to negotiate with respect to any distribution agreement for the sale of NB-02 in such territory.

**Competition**

The pharmaceutical and biotechnology industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary products. NeuroBo faces potential competition from many different sources, including major pharmaceutical, specialty pharmaceutical and biotechnology companies, academic institutions, governmental agencies and public and private research institutions. Any product candidates that NeuroBo successfully develops and commercializes will compete with existing therapies and new therapies that may become available in the future.

Some of NeuroBo's competitors may have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved products than NeuroBo does. Other firms may also compete with NeuroBo in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient enrollment for clinical trials, as well as in acquiring technologies complementary to, or necessary for, NeuroBo's programs. Mergers and acquisitions in the pharmaceutical, biotechnology and diagnostic industries may result in even more resources being concentrated among a smaller number of NeuroBo's competitors. Smaller or early-stage companies may also prove to be significant competitors with NeuroBo, particularly through collaborative arrangements with large and established companies.

NeuroBo's commercial opportunity could be reduced or eliminated if its competitors develop and commercialize therapeutics that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that NeuroBo may develop. NeuroBo's competitors also may obtain marketing approvals for their products more rapidly than NeuroBo may obtain approval for its products, which could result in its competitors establishing a strong market position before NeuroBo is able to enter the market. In addition, NeuroBo's ability to compete may be affected because in some cases insurers or other third-party payors, including government programs, seek to encourage the use of generic products. This may have the effect of making branded products less attractive, from a cost perspective, to buyers.

*NB-01—Painful Diabetic Neuropathy*

NeuroBo expects that, if approved, NB-01 will compete with currently approved drug therapies for painful diabetic neuropathy, including pregabalin, duloxetine, and tapentadol HCl. NeuroBo is also aware of a number of therapies that are approved to treat other types of neuropathic pain, and that various therapies are used off-label to treat neuropathic pain. In addition to the marketed therapies, NeuroBo is aware of several companies currently developing therapies for neuropathic pain, including Biogen Inc., Cara Therapeutics, Inc., Daiichi Sankyo Company, Eliem Therapeutics Inc, Immune Pharmaceuticals Inc., Novartis AG, and Xenoport Inc.

*NB-02—Cognitive disease and Tauopathies*

NeuroBo expects that, if approved, NB-02 will compete with the currently approved therapies for management of cognitive disease including Alzheimer's disease. In Alzheimer's disease, four drugs are currently approved by the FDA for the treatment of symptoms of Alzheimer's disease, based on

acetylcholinesterase (AChE) inhibition (three drugs) and NMDA receptor antagonism (one drug). In addition to the marketed therapies, NeuroBo is aware of several companies currently developing therapies for Alzheimer's disease, including Eisai Co., Ltd., Hoffman-LaRoche, Otsuka Pharmaceuticals, Inc., Novartis AG, and Avanir Pharmaceuticals, and Biohaven Pharmaceuticals.

**Intellectual Property**

NeuroBo's ability to commercialize its product candidates depends in large part on its ability to obtain and maintain intellectual property protection for its product candidates, including NB-01 and NB-02. NeuroBo's policy is to seek to protect its intellectual property position by, among other methods, filing U.S. and foreign patent applications related to the technology, inventions and improvements that are important to the development and implementation of its business strategy. NeuroBo also relies on trade secrets, know-how and continuing technological innovation to develop and maintain its proprietary position.

NeuroBo has licensed or acquired rights to patent applications directed to its product candidates, preclinical compounds and related technologies to establish intellectual property positions on these compounds and their uses in disease. As of October 25, 2019, NeuroBo has two issued U.S. patents, comprised of one patent directed to use and another to composition of matter and four U.S. patent applications, three of which are directed to composition of matter, and one to use. The issued US patents have expiration dates of May 9, 2027 and December 29, 2031. NeuroBo also has approximately 71 foreign patents, comprised of 21 granted patents to composition of matter and 50 granted patents to use, and 11 pending applications, comprised of 10 applications to composition of matter and one application to use. The granted foreign patents have expiration dates ranging from October 27, 2026 to December 3, 2035. The jurisdictions for the foreign patents and applications include: Brazil, Canada, China, the European Patent Convention (including Austria, Belgium, Finland, France, Germany, Greece, Hungary, Italy, Netherlands, Poland, Portugal, Romania, Spain, Switzerland, Turkey, and the United Kingdom), India, Japan, Mexico, the Republic of Korea, and Russia.

As of October 25, 2019, NeuroBo's intellectual property portfolio for NB-01 included two issued U.S. patents, comprised of one patent directed to composition of matter and another directed to use, and two pending U.S. non-provisional patent applications, comprised of one directed to composition of matter and another directed to use, and 65 granted foreign patents, comprised of eight patents directed to composition of matter and 57 patents directed to use, and two pending foreign applications directed to composition of matter; these patents and applications are related to its NB-01 clinical programs in peripheral neuropathy and neurological conditions. The issued patents have expiration dates ranging from October 27, 2026 to December 29, 2031. Patents issuing from these applications, if any, are expected to expire between 2026 and 2031. One patent family including some of the above patents and patent applications for NB-01 is assigned to University-Industry Cooperation Group of Kyung Hee University, and is exclusively licensed from Kyung Hee University to Dong-A ST and then from Dong-A ST to NeuroBo pursuant to the terms of the corresponding agreements. The other two patent families including the other above patents and patent applications for NB-01 are assigned to Dong-A ST and exclusively licensed to NeuroBo.

As of October 25, 2019, NeuroBo's intellectual property portfolio for NB-02 included two pending U.S. non-provisional patent applications, 6 foreign granted patents, and 9 foreign patent applications, all of which are directed to compositions of matter. Patents issuing from these applications, if any, are expected to expire around 2035. The issued patents have an expiration date of December 3, 2035. All of the above patents and patent applications for NB-02 were assigned to NeuroBo pursuant to the terms of the corresponding agreement.

The term of individual patents depends upon the legal term of the patents in the countries in which they are obtained. In most countries, including the United States, the patent term is 20 years

from the earliest filing date of a non-provisional patent application. In the United States, a patent's term may be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the U.S. Patent and Trademark Office, or the USPTO, in examining and granting a patent, or may be shortened if a patent is terminally disclaimed over an earlier filed patent. The term of a U.S. patent that covers a drug or biological product may also be eligible for patent term extension when approval from the FDA is granted, provided statutory and regulatory requirements are met. In the future, if NeuroBo's product candidates receive approval from the FDA or foreign regulatory authorities, NeuroBo expects to apply for patent term extensions on issued patents covering those products, depending upon the length of the clinical trials for each drug and/or other factors. There can be no assurance that any of NeuroBo's pending patent applications will issue or that NeuroBo will benefit from any patent term extension or other favorable adjustment to the term of any of its patents.

As with other biotechnology and pharmaceutical companies, NeuroBo's ability to maintain and solidify its proprietary and intellectual property position for its product candidates, including NB-01 and NB-02, its preclinical compounds, and its core technologies will depend on its success in obtaining effective patent claims and enforcing those claims if granted. However, patent applications that NeuroBo may file or license from third parties may not result in the issuance of patents. NeuroBo also cannot predict the breadth of claims that may be allowed or enforced in its patents. Any issued patents that NeuroBo may receive in the future may be challenged, invalidated or circumvented. For example, prior to March 16, 2013, in the United States, patent applications were subject to a "first to invent" rule of law. Applications filed after March 16, 2013, except for certain applications claiming the benefit of earlier-filed applications, are subject to a "first to file" rule of law.

Discoveries reported in the scientific literature often lag the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. NeuroBo cannot be certain that any existing or future application will be subject to the "first to file" or "first to invent" rule of law, that NeuroBo or its licensor were the first to make the inventions claimed in NeuroBo's existing patent portfolio subject to the prior laws, or that NeuroBo or its licensor were the first to file for patent protection of such inventions subject to the new laws. If third parties prepare and file patent applications in the United States that also claim technology NeuroBo has claimed in its patents or patent applications, NeuroBo may have to participate in interference proceedings in the USPTO to determine priority of invention, which could result in substantial costs to NeuroBo, even if the eventual outcome is favorable to NeuroBo. In addition, because of the extensive time required for clinical development and regulatory review of a product candidate NeuroBo may develop, it is possible that, before any of NeuroBo's product candidates can be commercialized, any related patent may expire or remain in force for only a short period following commercialization, thereby reducing any advantage of any such patent.

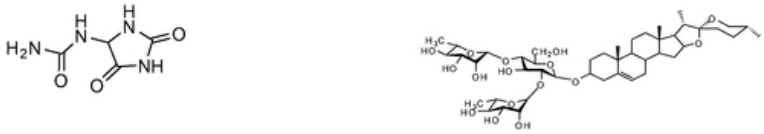
In addition to patents, NeuroBo relies upon unpatented trade secrets, know-how, and continuing technological innovation to develop and maintain its competitive position. NeuroBo seeks to protect its proprietary information, in part, by using confidentiality agreements with its collaborators, scientific advisors, employees and consultants, and invention assignment agreements with its employees. NeuroBo also has agreements requiring assignment of inventions with selected consultants, scientific advisors and collaborators. The confidentiality agreements are designed to protect NeuroBo's proprietary information and, in the case of agreements or clauses requiring invention assignment, to grant NeuroBo ownership of technologies that are developed under those agreements.

**Manufacturing**

NB-01 is derived from two plant species native to China, *Dioscorea Rhizome* and *Dioscoreae Nipponicae Rhizoma*. Both species have been previously used in traditional Chinese medicine (TCM) for the treatment of arthritis-related pain, muscular pain and pain related to other conditions such as Kashin-Beck disease. Traditional Chinese medicine (TCM) is a style of traditional medicine built on a

foundation of more than 2,500 years of Chinese medical practice that includes various forms of herbal medicine, acupuncture, massage (tui na), exercise (qigong), and dietary therapy.

While the characterization of the full composition of NB-01 and underlying active compounds is underway, certain compounds have been identified for purposes of product screening and quality control. These include allantoin and dioscin, the chemical structures for which are shown in Figure 7 below. Allantoin is a marker of the *D. Rhizome* extract and dioscin is a marker of the *D. Nipponicae Rhizoma* extract. Signature high-performance liquid chromatography (HPLC) chemical profile assays are established for both markers. These markers are used to show the drug quality profile during the manufacturing of the drug extract from the plant species and the final drug product formulation used in the human clinical studies.



**Allantoin** **Dioscin**

***Figure 7—Chemical Structure of NB-01 Compounds***

NB-01 is manufactured in a highly monitored and controlled manner to ensure rigorous batch-to-batch consistency that yields a complex mixture of active compounds. NB-01 is considered a "botanical drug product" by the FDA, which defines this class of products to include plant materials, algae, macroscopic fungi, and combinations thereof. As a result, it has unique features that must be taken into account during the drug development process. Plant species used for the production of NeuroBo's compounds are cultivated on dedicated, Good Agricultural and Collection Practices (GACP)-compliant acreage in accordance with established World Health Organization (WHO) standards for starting materials of plant or herbal origin, as recommended by FDA its guidelines for botanical drug development. Production of the drug substance from the botanical raw material involves modern harvesting and extraction processes incorporating state-of-the-art molecular biology and analytical chemistry methodologies.

The manufacturing process and analytical testing methodologies have been validated and the adherence to regulatory requirements of the processes have been audited by two firms, Amarex and FDAMap, well-experienced in the review and audit of botanical drug requirements of the FDA. The drug substance, an ethanol extract of the two plant species, combined in a specific weight ratio, is manufactured in KGC Yebon, in South Korea in a GMP-compliant process, and has been audited by Amarex and FDAMap. The drug substance has completed process validation and analysis method validation, and demonstrated 36-month stability. The drug product is manufactured by Dong-A ST in South Korea in a GMP-compliant process, and is audited by Amarex and FDAMap. The final drug product has completed process validation and analysis method validation, and demonstrated 36-month stability.

**Government Regulation and Approval**

***The FDA Approval Process***

In the United States, pharmaceutical products are subject to extensive regulation by the FDA. The Federal Food, Drug, and Cosmetic Act, or the FDCA, and other federal and state statutes and regulations, govern, among other things, the research, development, testing, manufacture, storage, recordkeeping, approval, labeling, promotion and marketing, distribution, post-approval monitoring and reporting, sampling, and import and export of pharmaceutical products. Failure to comply with applicable U.S. requirements may subject a company to a variety of administrative or judicial sanctions,

such as imposition of clinical holds, refusal by the FDA to approve pending New Drug Applications (NDAs), warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement, civil penalties and criminal prosecution.

Pharmaceutical product development in the United States typically involves preclinical or other nonclinical laboratory and animal tests and the submission to the FDA of an Investigational New Drug (IND) application, which must become effective before clinical testing may commence. For commercial approval, the sponsor must submit adequate tests by all methods reasonably applicable to show that the drug is safe for use under the conditions prescribed, recommended or suggested in the proposed labeling. The sponsor must also submit substantial evidence, generally consisting of adequate, well-controlled clinical trials to establish that the drug will have the effect it purports or is represented to have under the conditions of use prescribed, recommended or suggested in the proposed labeling. In certain cases, the FDA may determine that a drug is effective based on one clinical study plus confirmatory evidence. Satisfaction of the FDA pre-market approval requirements typically takes many years and the actual time required may vary substantially based upon the type, complexity and novelty of the product or disease. For botanical drug products in particular, which may be heterogeneous in nature and may carry additional uncertainty about their active constituents in comparison to synthetic small-molecule drug products, one of the critical issues during drug development is ensuring that the therapeutic effect for marketed drug product batches is consistent. FDA has determined that therapeutic consistency can generally be supported by a "totality of the evidence" approach, which the agency has outlined in a 2016 guidance for industry entitled Botanical Drug Development.

Nonclinical tests include laboratory evaluation of product chemistry, formulation and toxicity, as well as animal studies to assess the characteristics and potential safety and efficacy of the product. The conduct of the nonclinical tests must comply with federal requirements, including the FDA's good laboratory practices regulations and the U.S. Department of Agriculture's, or USDA's, regulations implementing the Animal Welfare Act. The results of nonclinical testing are submitted to the FDA as part of an IND along with other information, including information about product chemistry, manufacturing and controls, and a proposed clinical trial protocol. Long-term nonclinical tests, such as animal studies of reproductive toxicity and carcinogenicity, may continue after the IND is submitted.

A 30-day waiting period after the submission of each IND is required prior to the commencement of clinical testing in humans. If the FDA has not imposed a clinical hold on the IND or otherwise commented or questioned the IND within this 30-day period, the clinical trial proposed in the IND may begin.

Clinical trials involve the administration of the investigational new drug to healthy volunteers or patients under the supervision of a qualified investigator. Clinical trials must be conducted: (i) in compliance with federal regulations, (ii) in compliance with good clinical practices (GCP), an international standard meant to protect the rights and health of patients and to define the roles of clinical trial sponsors, administrators and monitors (some of which have been codified into U.S. federal regulations), and (iii) under protocols detailing the objectives of the trial, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. Each protocol involving testing on U.S. patients and subsequent protocol amendments must be submitted to the FDA as part of the IND.

The FDA may order the temporary, or permanent, discontinuation of a clinical trial at any time or impose other sanctions if it believes that the clinical trial either is not being conducted in accordance with the FDA requirements or presents an unacceptable risk to the clinical trial patients. The trial protocol and informed consent information for patients in clinical trials must also be submitted to an institutional review board, or IRB, at each site where a trial will be conducted for approval. An IRB may also require the clinical trial at the site to be halted, either temporarily or permanently, for failure to comply with the IRB's requirements or may impose other conditions.

Clinical trials to support NDAs for marketing approval are typically conducted in three sequential phases, but the phases may overlap. In general, in Phase I, the initial introduction of the drug into healthy human volunteers or, in some cases, patients, the drug is tested to assess metabolism, pharmacokinetics, pharmacological actions, side effects associated with increasing doses and, if possible, early evidence of effectiveness. Phase 2 usually involves trials in a limited patient population to determine the effectiveness of the drug for a particular indication, dosage tolerance and optimum dosage, and to identify common adverse effects and safety risks. If a compound demonstrates evidence of effectiveness and an acceptable safety profile in Phase 2 evaluations, Phase 3 trials are undertaken to obtain the additional information about clinical efficacy and safety in a larger number of patients, typically at geographically dispersed clinical trial sites, to permit the FDA to evaluate the overall benefit-risk relationship of the drug and to provide adequate information for the labeling of the drug. In most cases, the FDA requires two adequate and well-controlled Phase 3 clinical trials to demonstrate the efficacy of the drug. The FDA may, however, determine that a drug is effective based on one clinical trial plus confirmatory evidence. Only a small percentage of investigational drugs complete all three phases and obtain marketing approval. In some cases, the FDA may require post-market studies, known as Phase IV studies, to be conducted as a condition of approval to gather additional information on the drug's effect in various populations and any side effects associated with long-term use. Depending on the risks posed by the drugs, other post-market requirements may be imposed.

After completion of the required clinical testing, an NDA is prepared and submitted to the FDA. FDA approval of the NDA is required before marketing of the product may begin in the United States. The NDA must include the results of all preclinical, clinical, and other testing and a compilation of data relating to the product's pharmacology, chemistry, manufacture, and controls. The cost of preparing and submitting an NDA is substantial. Under federal law, the submission of most NDAs is additionally subject to a substantial application user fee, which for Fiscal Year 2019 is $2,588,478, and the manufacturer and/or sponsor under an approved NDA are also subject to annual program fees, which for Fiscal Year 2019 is $309,915.

The FDA has 60 days from its receipt of an NDA to determine whether the application will be accepted for filing based on the agency's threshold determination that it is sufficiently complete to permit substantive review. Once the submission is accepted for filing, the FDA begins an in-depth review. Under the statute and implementing regulations, the FDA has 180 days (the initial review cycle) from the date of filing to issue either an approval letter or a complete response letter, unless the review period is adjusted by mutual agreement between the FDA and the applicant or as a result of the applicant submitting a major amendment. In practice, the performance goals established pursuant to the Prescription Drug User Fee Act have effectively extended the initial review cycle beyond 180 days. The FDA's current performance goals call for the FDA to complete review of 90% of standard (non-priority) NDAs within 10 months of receipt and within six months for priority NDAs, but two additional months are added to standard and priority NDAs for a new molecular entity, or NME, such that the 10-month and 6-month action goals for NME applications begin to run from the 60-day filing date rather than from receipt of the original NDA submission.

The FDA may also refer applications for novel drug products, or drug products that present difficult questions of safety or efficacy, to an advisory committee, which is typically a panel that includes clinicians and other experts, for review, evaluation and a recommendation as to whether the application should be approved. The FDA is not bound by the recommendation of an advisory committee, but it generally follows such recommendations. Before approving an NDA, the FDA will typically inspect one or more clinical sites to assure compliance with GCP. Additionally, the FDA will inspect the facility or the facilities at which the drug is manufactured. The FDA will not approve the product unless compliance with current good manufacturing practice (GMP) regulations is satisfactory and the NDA contains data that provide substantial evidence that the drug is safe and effective in the indication studied.

After the FDA evaluates the NDA and the manufacturing facilities, it issues either an approval letter or a complete response letter. A complete response letter (CRL) generally outlines the deficiencies in the submission and may require substantial additional testing, or information, in order for the FDA to reconsider the application. If, or when, those deficiencies have been addressed to the FDA's satisfaction in a resubmission of the NDA, the FDA will issue an approval letter. The FDA has committed to reviewing 90% of NDA resubmissions within two to six months depending on the type of information included in response to the deficiencies identified in the CRL.

An approval letter authorizes commercial marketing of the drug with specific prescribing information for specific indications. As a condition of NDA approval, the FDA may require a risk evaluation and mitigation strategy, or REMS, to help ensure that the benefits of the drug outweigh the potential risks. REMS can include medication guides, communication plans for health care professionals, and/or elements to assure safe use, or ETASU. ETASU can include, but are not limited to, special training or certification for prescribing or dispensing, dispensing only under certain circumstances, special monitoring, and the use of patient registries. The requirement for a REMS can materially affect the potential market and profitability of the drug. Moreover, product approval may require substantial post-approval testing and surveillance to monitor the drug's safety or efficacy. Once granted, product approvals may be withdrawn if compliance with regulatory standards is not maintained or problems are identified following initial marketing.

***Disclosure of Clinical Trial Information***

Sponsors of clinical trials of certain FDA-regulated products, including prescription drugs, are required to register and disclose certain clinical trial information on a public website maintained by the U.S. National Institutes of Health (NIH). Information related to the product, patient population, phase of investigation, study sites and investigator, and other aspects of the clinical trial is made public as part of the registration. Sponsors are also obligated to disclose the results of these trials after completion. Disclosure of the results of these trials can be delayed for up to two years if the sponsor certifies that it is seeking approval of an unapproved product or that it will file an application for approval of a new indication for an approved product within one year. Competitors may use this publicly available information to gain knowledge regarding the design and progress of the development programs. Failure to timely register a covered clinical study or to submit study results as provided for in the law can give rise to civil monetary penalties and also prevent the non-compliant party from receiving future grant funds from the federal government. Since the NIH's Final Rule on ClinicalTrials.gov registration and reporting requirements became effective in 2017, both NIH and FDA have signaled the government's willingness to begin enforcing those requirements against clinical trial sponsors who fail to meet those legal obligations, with FDA releasing in late 2018 a proposal for certain procedural steps it intends to take when determining whether and how to assess civil monetary penalties against a non-compliant party.

***Fast Track, Breakthrough Therapy, Priority Review Designations and Accelerated Approval***

The FDA is authorized to facilitate the development, and expedite the review, of drugs that are intended for the treatment of a serious or life-threatening disease or condition for which there is no effective treatment and which demonstrate the potential to address unmet medical needs for the condition. These programs include fast track designation, breakthrough therapy designation, priority review designation and other accelerated approvals.

Under the Fast Track Program, the sponsor of a new drug candidate may request that the FDA designate the drug candidate for a specific indication as a Fast Track drug concurrent with, or after, the filing of the IND for the drug candidate. The FDA must determine if the drug candidate qualifies for Fast Track designation within 60 days of receipt of the sponsor's request. In addition to other benefits such as the ability to engage in more frequent interactions with the FDA, the FDA may initiate review

of sections of a Fast Track drug's NDA before the application is complete. This rolling review is available if the applicant provides, and the FDA approves, a schedule for the submission of the remaining information and the applicant pays applicable user fees. However, the FDA's time period goal for reviewing an application does not begin until the last section of the NDA is submitted. Additionally, the Fast Track designation may be withdrawn by the FDA if the FDA believes that the designation is no longer supported by data emerging in the clinical trial process.

In 2012, Congress enacted the Food and Drug Administration Safety and Innovation Act, or FDASIA. This law established a new regulatory program for products designated as "breakthrough therapies." A product may be designated as a breakthrough therapy if it is intended, either alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The FDA may take certain actions with respect to designated breakthrough therapies, including: holding meetings with the sponsor throughout the development process; providing timely advice to the product sponsor regarding development and approval; involving more senior staff in the review process; assigning a cross-disciplinary project lead for the review team; and taking other steps to design the clinical trials in an efficient manner.

The FDA may also designate a product for priority review if it is a drug that treats a serious condition and, if approved, would provide a significant improvement in safety or effectiveness. The FDA determines at the time that the marketing application is submitted, on a case- by-case basis, whether the proposed drug represents a significant improvement when compared with other available therapies. Significant improvement may be illustrated by evidence of increased effectiveness in the treatment of a condition, elimination or substantial reduction of a treatment-limiting drug reaction, documented enhancement of patient compliance that may lead to improvement in serious outcomes, or evidence of safety and effectiveness in a new subpopulation. A priority review designation is intended to direct overall attention and resources to the evaluation of such applications, and to shorten the FDA's goal for taking action on a marketing application from ten months to six months.

Under the FDA's accelerated approval regulations, the FDA may approve a drug for a serious or life-threatening illness that provides meaningful therapeutic benefit to patients over existing treatments based upon a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity or prevalence of the condition and the availability or lack of alternative treatments. The accelerated approval regulations are codified within Title 21 of the Code of Federal Regulations, as Subpart H under Part 314, the part of the FDA regulations covering applications for FDA approval to market a new drug, and as such the accelerated approval pathway is sometimes referred to as approval under "Subpart H."

In clinical trials, a surrogate endpoint is a measurement of laboratory or clinical signs of a disease or condition that substitutes for a direct measurement of how a patient feels, functions or survives. Surrogate endpoints can often be measured more easily or more rapidly than clinical endpoints. A drug candidate approved under Subpart H is subject to rigorous post-marketing compliance requirements, including the completion of Phase IV or post-approval clinical trials to confirm the effect on the clinical endpoint. Failure to conduct required post-approval studies, or confirm a clinical benefit during post-marketing studies, will allow the FDA to withdraw the drug from the market on an expedited basis. Unless otherwise informed by the FDA, for an accelerated approval product an applicant must submit to the FDA for consideration during the preapproval review period copies of all promotional materials, including promotional labeling as well as advertisements, intended for dissemination or publication within 120 days following marketing approval. After 120 days following marketing approval, unless otherwise informed by the FDA, the applicant must submit promotional materials at least

30 days prior to the intended time of initial dissemination of the labeling or initial publication of the advertisement. The accelerated approval pathway is most often used in settings in which the course of a disease is long and an extended period of time is required to measure the intended clinical benefit of a drug, even if the effect on the surrogate or intermediate clinical endpoint occurs rapidly. For example, accelerated approval has been used extensively in the development and approval of drugs for treatment of a variety of cancers in which the goal of therapy is generally to improve survival or decrease morbidity and the duration of the typical disease course requires lengthy and sometimes large clinical trials to demonstrate a clinical or survival benefit.

*Post-Approval Requirements*

Drugs manufactured, marketed or distributed pursuant to FDA approval decisions are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to recordkeeping, periodic reporting, product sampling and distribution, advertising and promotion, and reporting of adverse experiences with the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims, are subject to FDA review and approval before they can be implemented. There also are continuing, annual user fee requirements for any marketed products and related manufacturing facilities, as well as new application fees for supplemental applications.

In addition, drug manufacturers and other entities involved in the manufacture of approved drugs are required to register their facilities with the FDA and state agencies, and are subject to periodic unannounced inspections by the FDA for compliance with GMP requirements. Prescription drug distribution facilities are also subject to state licensure, including inspections, by the relevant local regulatory authority. Changes to the manufacturing process, specifications or container closure system for an approved drug are strictly regulated and often require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from GMP and impose reporting and documentation requirements upon the sponsor and others involved in the drug manufacturing process. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain GMP compliance and ensure ongoing compliance with other statutory requirements the FDCA, such as the requirements for making manufacturing changes to an approved NDA.

Thus, even after new drug approval is granted, the FDA may withdraw that approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical trials to assess new safety risks; or imposition of distribution or other restrictions under a REMS program. Other potential consequences of regulatory non-compliance include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters or holds on post-approval clinical trials;
- refusal of the FDA to approve pending NDAs or supplements to approved NDAs, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of products; or
- injunctions or the imposition of civil or criminal penalties.

As described further below, the FDA strictly regulates marketing, labeling, advertising and promotion of prescription drug products that are placed on the market. Drugs may be promoted only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant penalties.

***The Hatch-Waxman Act***

*Orange Book Listing*

In 1984, with passage of the Hatch-Waxman Amendments to the FDCA, Congress authorized the FDA to approve generic drugs that are the same as drugs previously approved by the FDA under the NDA provisions of the statute. As part of the marketing application process when seeking approval for a new drug through an NDA, applicants are required to list with the FDA every patent whose claims cover the applicant's product or an approved method of using the product. Upon approval of a drug, approval information about the drug along with each of the applicant's listed patents is then published in the FDA's *Approved Drug Products with Therapeutic Equivalence Evaluations*, commonly known as the "Orange Book." Pursuant to the Hatch-Waxman Amendments, drugs listed in the Orange Book can, in turn, be cited by potential generic competitors in support of approval of an abbreviated new drug application, or ANDA. An ANDA provides for marketing of a drug product that has the same active ingredients in the same strengths and dosage form as the RLD and has been shown through bioequivalence testing to be bioequivalent to the RLD. The FDA is responsible for determining that the generic drug is "bioequivalent" to the innovator drug, although under the statute, a generic drug is bioequivalent to a RLD if "the rate and extent of absorption of the drug do not show a significant difference from the rate and extent of absorption of the listed drug..."

Other than the requirement for bioequivalence testing, ANDA applicants are not required to conduct, or submit results of, preclinical or clinical tests to prove the safety or effectiveness of their drug product. Drugs approved in this way are most often considered to be therapeutically equivalent to the RLD, are commonly referred to as "generic equivalents" to the RLD, and can often be substituted by pharmacists under prescriptions written for the original RLD in accordance with state law. Specifically, upon approval of an ANDA, the FDA indicates whether the generic product is "therapeutically equivalent" to the RLD in the Orange Book. By operation of certain state laws and numerous health insurance programs, the FDA's designation of therapeutic equivalence in the Orange Book often results in substitution of the generic drug without the knowledge or consent of either the prescribing physician or the patient.

The Hatch-Waxman Amendments also amended the FDCA to enact Section 505(b)(2) of the FDCA, which permits the filing of an NDA where at least some of the information required for approval comes from studies not conducted by or for the applicant and for which the applicant has not obtained a right of reference. A Section 505(b)(2) applicant may eliminate the need to conduct certain preclinical or clinical studies, if it can establish that reliance on studies conducted for a previously-approved product is scientifically appropriate. The FDA may also require companies to perform additional trials or measurements to support the change from the approved product. The FDA may then approve the new product for all or some of the label indications for which the referenced product has been approved, as well as for any new indication sought by the Section 505(b)(2) applicant. With respect to listed patents, patent certification requirements, and the blocking of follow-on marketing applications for the drug product previously approved under an NDA and listed in the Orange Book—known as the reference listed drug, or RLD—505(b)(2) NDA applications and ANDAs are required under the statute and FDA's implementing regulations to follow similar procedures and are subject to similar conditions. However, only in some cases is a 505(b)(2) NDA-approved drug product determined by FDA to be therapeutically equivalent to the original innovator RLD.

As part of its own marketing application process, the ANDA/505(b)(2) applicant is required to certify to the FDA concerning any patents listed for the relevant RLD in the FDA's Orange Book. Specifically, the applicant must certify either that: (i) the required patent information has not been filed; (ii) the listed patent has expired; (iii) the listed patent has not expired, but will expire on a particular date and approval is sought after patent expiration; or (iv) the listed patent is invalid or will not be infringed by the generic product. The ANDA applicant may also elect to submit a section viii statement, certifying that its proposed ANDA or 505(b)(2) labeling does not contain (or carves out) any language regarding the patented method-of-use, rather than certify to a listed method-of-use patent.

If the ANDA/505(b)(2) applicant does not challenge the innovator's listed patents, or indicates that it is not seeking approval of a patented method of use, the ANDA/505(b)(2) application will not be approved by the FDA until all the listed patents claiming the referenced product have expired.

A certification that the new product will not infringe the already approved product's listed patents, or that such patents are invalid, is called a Paragraph IV certification. If the ANDA/505(b)(2) applicant has provided a Paragraph IV certification to the FDA, the applicant must also send notice of that Paragraph IV certification to the NDA sponsor and patent holders once FDA accepts the ANDA/505(b)(2) application for filing. The NDA and patent holders may then initiate a patent infringement lawsuit in response to the notice of the Paragraph IV certification, as provided for in the statute. The filing of a patent infringement lawsuit within 45 days of the receipt of a Paragraph IV certification automatically prevents the FDA from approving the ANDA/505(b)(2) NDA until the earlier of 30 months, expiration of the patent, settlement of the lawsuit, or a decision in the infringement case that is favorable to the ANDA/505(b)(2) applicant.

*Non-Patent Exclusivity*

Under the Hatch-Waxman Amendments, the FDA also may not approve an ANDA or 505(b)(2) NDA until any applicable period of non-patent exclusivity for the RLD has expired. The FDCA provides a period of five years of non-patent exclusivity for a new drug containing a new chemical entity, or NCE, which is a drug that contains no active moiety that has been approved by the FDA in any other NDA. During this five years of marketing exclusivity, the FDA cannot receive any ANDA or 505(b)(2) application seeking approval of a drug that references a version of the NCE drug.

The FDCA also provides for a period of three years of exclusivity if the NDA includes reports of one or more new clinical investigations, other than bioavailability or bioequivalence studies, that were conducted by or for the applicant and are essential to the approval of the application. This three-year exclusivity period often protects changes to a previously approved drug product, such as a new dosage form, route of administration, combination or the addition of a new indication. During this three-year period of exclusivity, the FDA cannot approve an ANDA or 505(b)(2) application that includes the change.

An ANDA or 505(b)(2) application may be submitted one year before NCE exclusivity expires if a Paragraph IV certification is filed. If there is no listed patent in the Orange Book, there may not be a Paragraph IV certification requirement, and in such situations, no ANDA or 505(b)(2) application may be filed before the expiration of the exclusivity period.

For a botanical drug, the FDA may determine that the active moiety is one or more of the principal components, or the complex mixture as a whole. This determination would affect the possibility of any five-year exclusivity as well as the ability of any potential generic competitor to demonstrate that it is the same drug as the original botanical drug. Because the agency has not promulgated specific regulations for botanical drug products and is approaching the development of such products, especially those that are composed of more complex mixtures, on a case-by-case basis,

the 2016 Botanical Drug Development guidance for industry represents the best source for the FDA's current thinking on these drug products.

*Patent Term Extension*

After NDA approval, owners of relevant drug patents may apply for up to a five-year patent extension. The allowable patent term extension is calculated as half of the drug's testing phase—the time between IND submission and NDA submission—and all of the review phase—the time between NDA submission and approval up to a maximum of five years. The time can be shortened if the FDA determines that the applicant did not pursue approval with due diligence. The total patent term after the extension may not exceed 14 years.

For patents that might expire during the application phase, the patent owner may request an interim patent extension. An interim patent extension increases the patent term by one year and may be renewed up to four times. For each interim patent extension granted, the post-approval patent extension is reduced by one year. The director of the U.S. Patent and Trademark Office must determine that approval of the drug covered by the patent for which a patent extension is being sought is likely. Interim patent extensions are not available for a drug for which an NDA has not been submitted.

***Post-Approval Advertising and Promotion***

Once an NDA is approved, a product will be subject to certain post-approval requirements. For instance, the FDA closely regulates the post-approval marketing and promotion of drugs.

Drugs may be marketed only for the approved indications and in accordance with the provisions of the FDA-approved labeling. Changes to some of the conditions established in an approved application, including changes in indications, the approved product packaging or labeling, or the manufacturing processes or facilities, require submission and FDA approval of an NDA supplement before the change can be implemented. An NDA supplement for a new indication typically requires clinical data similar to that in the original application, and the FDA uses the same procedures and actions in reviewing NDA supplements as it does in reviewing NDAs.

***Adverse Event Reporting and GMP Compliance***

Adverse event reporting and submission of periodic reports is required following FDA approval of an NDA. The FDA also may require post-marketing testing, known as Phase IV testing, require a REMS special communications regarding the safety of the drug or heightened surveillance to monitor the effects of an approved product, or may place conditions on an approval that could restrict the distribution or use of the product. In addition, quality control, drug manufacture, packaging, and labeling procedures must continue to conform to GMP after approval. Drug manufacturers and certain of their subcontractors are required to register their establishments with the FDA and certain state agencies. Registration with the FDA subjects entities to periodic unannounced inspections by the FDA, during which the agency inspects manufacturing facilities to assess compliance with GMP. Accordingly, manufacturers must continue to expend time, money and effort in the areas of production and quality control to maintain compliance with GMP. Regulatory authorities may withdraw product approvals or request product recalls if a company fails to comply with regulatory standards, if it encounters problems following initial marketing or if previously unrecognized problems are subsequently discovered.

***Special Protocol Assessment***

A company may reach an agreement with the FDA under the Special Protocol Assessment, or SPA, process as to the required design and size of clinical trials intended to form the primary basis of an efficacy claim for a new drug product. According to its performance goals, the FDA seeks to

evaluate the protocol within 45 days of the request to assess whether the proposed trial is adequate, and that evaluation may result in discussions and a request for additional information. An SPA request must be made before the proposed trial begins, and all open issues must be resolved before the trial begins. If a written agreement is reached, it will be documented and made part of the administrative record. Under the FDCA and FDA guidance implementing the statutory requirement, an SPA is generally binding upon the FDA except in limited circumstances, such as if the FDA identifies a substantial scientific issue essential to determining safety or efficacy after the study begins, public health concerns emerge that were unrecognized at the time of the protocol assessment, the sponsor and the FDA agree to the change in writing, or if the study sponsor fails to follow the protocol that was agreed upon with the FDA.

***Europe/Rest of World Government Regulation***

In addition to regulations in the United States, NeuroBo is and will be subject, either directly or through its distribution partners, to a variety of regulations in other jurisdictions governing, among other things, clinical trials and any commercial sales and distribution of its products, if approved.

Whether or not NeuroBo obtains FDA approval for a product, NeuroBo must obtain the requisite approvals from regulatory authorities in non-U.S. countries prior to the commencement of clinical trials or marketing of the product in those countries.

In the European Union, medicinal products are subject to extensive pre- and post-marketing regulation by regulatory authorities at both the European Union and national levels. Additional rules also apply at the national level to the manufacture, import, export, storage, distribution and sale of controlled substances. In many E.U. member states the regulatory authority responsible for medicinal products is also responsible for controlled substances. Responsibility is, however, split in some member states, such as the United Kingdom. Generally, any company manufacturing or distributing a medicinal product containing a controlled substance in the European Union will need to hold a controlled substances license from the competent national authority and will be subject to specific record-keeping and security obligations. Separate import or export certificates are required for each shipment into or out of the member state.

***Clinical Trials and Marketing Approval***

Certain countries outside of the United States have a process that requires the submission of a clinical trial application much like an IND prior to the commencement of human clinical trials. In Europe, for example, a clinical trial application, or CTA, must be submitted to the competent national health authority and to independent ethics committees in each country in which a company intends to conduct clinical trials. Once the CTA is approved in accordance with a country's requirements and a company has received favorable ethics committee approval, clinical trial development may proceed in that country.

The requirements and process governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country, even though there is already some degree of legal harmonization in the European Union member states resulting from the national implementation of underlying E.U. legislation. In all cases, the clinical trials must be conducted in accordance with the International Conference on Harmonization, or ICH, guidelines on GCP and other applicable regulatory requirements.

To obtain regulatory approval to place a drug on the market in the European Union, NeuroBo must submit a marketing authorization application. This application is similar to the NDA in the United States, with the exception of, among other things, country-specific document requirements. All application procedures require an application in the common technical document, or CTD, format, which includes the submission of detailed information about the manufacturing and quality of the

product, and non-clinical and clinical trial information. Drugs can be authorized in the European Union by using (i) the centralized authorization procedure, (ii) the mutual recognition procedure, (iii) the decentralized procedure or (iv) national authorization procedures.

The European Commission created the centralized procedure for the approval of human drugs to facilitate marketing authorizations that are valid throughout the European Union and, by extension (after national implementing decisions) in Iceland, Liechtenstein and Norway, which, together with the E.U. member states, comprise the European Economic Area, or EEA. Applicants file marketing authorization applications with the EMA, where they are reviewed by a relevant scientific committee, in most cases the Committee for Medicinal Products for Human Use, or CHMP. The EMA forwards CHMP opinions to the European Commission, which uses them as the basis for deciding whether to grant a marketing authorization. This procedure results in a single marketing authorization granted by the European Commission that is valid across the European Union, as well as in Iceland, Liechtenstein and Norway. The centralized procedure is compulsory for human drugs that are: (i) derived from biotechnology processes, such as genetic engineering, (ii) contain a new active substance indicated for the treatment of certain diseases, such as HIV/AIDS, cancer, diabetes, neurodegenerative diseases, autoimmune and other immune dysfunctions and viral diseases, (iii) officially designated "orphan drugs" (drugs used for rare human diseases) and (iv) advanced-therapy medicines, such as gene-therapy, somatic cell-therapy or tissue-engineered medicines. The centralized procedure may, at the voluntary request of the applicant, also be used for human drugs which do not fall within the above-mentioned categories if the CHMP agrees that (a) the human drug contains a new active substance not yet approved on November 20, 2005; (b) it constitutes a significant therapeutic, scientific or technical innovation or (c) authorization under the centralized procedure is in the interests of patients at the E.U. level.

Under the centralized procedure in the European Union, the maximum timeframe for the evaluation of a marketing authorization application by the EMA is 210 days (excluding clock stops, when additional written or oral information is to be provided by the applicant in response to questions asked by the CHMP), with adoption of the actual marketing authorization by the European Commission thereafter. Accelerated evaluation might be granted by the CHMP in exceptional cases, when a medicinal product is expected to be of a major public health interest from the point of view of therapeutic innovation, defined by three cumulative criteria: the seriousness of the disease to be treated, the absence of an appropriate alternative therapeutic approach, and anticipation of exceptional high therapeutic benefit. In this circumstance, the EMA ensures that the evaluation for the opinion of the CHMP is completed within 150 days and the opinion issued thereafter.

For those medicinal products for which the centralized procedure is not available, the applicant must submit marketing authorization applications to the national medicines regulators through one of three procedures: (i) the mutual recognition procedure (which must be used if the product has already been authorized in at least one other E.U. member state, and in which the E.U. member states are required to grant an authorization recognizing the existing authorization in the other E.U. member state, unless they identify a serious risk to public health), (ii) the decentralized procedure (in which applications are submitted simultaneously in two or more E.U. member states) or (iii) national authorization procedures (which results in a marketing authorization in a single E.U. member state).

***Mutual Recognition Procedure***

The mutual recognition procedure, or MRP, for the approval of human drugs is an alternative approach to facilitate individual national marketing authorizations within the European Union. Basically, the MRP may be applied for all human drugs for which the centralized procedure is not obligatory. The MRP is applicable to the majority of conventional medicinal products and must be used if the product has already been authorized in one or more member states.

The characteristic of the MRP is that the procedure builds on an already—existing marketing authorization in a member state of the European Union that is used as a reference in order to obtain marketing authorizations in other E.U. member states. In the MRP, a marketing authorization for a drug already exists in one or more member states of the European Union and subsequently marketing authorization applications are made in other E.U. member states by referring to the initial marketing authorization. The member state in which the marketing authorization was first granted will then act as the reference member state. The member states where the marketing authorization is subsequently applied for act as concerned member states. The concerned member states are required to grant an authorization recognizing the existing authorization in the reference member state, unless they identify a serious risk to public health.

The MRP is based on the principle of the mutual recognition by E.U. member states of their respective national marketing authorizations. Based on a marketing authorization in the reference member state, the applicant may apply for marketing authorizations in other member states. In such case, the reference member state shall update its existing assessment report about the drug in 90 days. After the assessment is completed, copies of the report are sent to all member states, together with the approved summary of product characteristics, labeling and package leaflet. The concerned member states then have 90 days to recognize the decision of the reference member state and the summary of product characteristics, labeling and package leaflet. National marketing authorizations shall be granted within 30 days after acknowledgement of the agreement.

If any E.U. member state refuses to recognize the marketing authorization by the reference member state, on the grounds of potential serious risk to public health, the issue will be referred to a coordination group. Within a timeframe of 60 days, member states shall, within the coordination group, make all efforts to reach a consensus. If this fails, the procedure is submitted to an EMA scientific committee for arbitration. The opinion of this EMA Committee is then forwarded to the European Commission for the start of the decision making process. As in the centralized procedure, this process entails consulting various European Commission Directorates General and the Standing Committee on Human Medicinal Products.

***Data Exclusivity***

In the European Union, marketing authorization applications for generic medicinal products do not need to include the results of preclinical and clinical trials, but instead can refer to the data included in the marketing authorization of a reference product for which regulatory data exclusivity has expired. If a marketing authorization is granted for a medicinal product containing a new active substance, that product benefits from eight years of data exclusivity, during which generic marketing authorization applications referring to the data of that product may not be accepted by the regulatory authorities, and a further two years of market exclusivity, during which such generic products may not be placed on the market. The two-year period may be extended to three years if during the first eight years a new therapeutic indication with significant clinical benefit over existing therapies is approved.

***Pharmaceutical Pricing, Coverage Reimbursement***

Sales of pharmaceutical products approved for marketing in the United States by the FDA will depend, in part, on the extent to which the costs of the products will be covered by third-party payers, such as government health programs, and commercial insurance and managed health care organizations. These third-party payers are increasingly challenging the prices charged for medical products and services. Additionally, the containment of health care costs has become a priority of federal and state governments, and the prices of drugs have been a focus in this effort. The U.S. government, state legislatures and foreign governments have shown significant interest in implementing cost-containment programs, including price controls, utilization management and requirements for substitution of generic products. Adoption of price controls and cost-containment measures, and

adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit NeuroBo's net revenue and results. If these third-party payers do not consider NeuroBo's products to be cost-effective compared to other available therapies, they may not cover NeuroBo's products after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow NeuroBo to sell its products on a profitable basis.

The Medicare Prescription Drug, Improvement, and Modernization Act of 2003, or the MMA, imposed requirements for the distribution and pricing of prescription drugs for Medicare beneficiaries and included a major expansion of the prescription drug benefit under Medicare Part D. Under Part D, Medicare beneficiaries may enroll in prescription drug plans offered by private entities that provide coverage of outpatient prescription drugs. Part D is available through both stand-alone prescription drug benefit plans and prescription drug coverage as a supplement to Medicare Advantage plans. Unlike Medicare Parts A and B, Part D coverage is not standardized. Part D prescription drug plan sponsors are not required to pay for all covered Part D drugs, and each drug plan can develop its own drug formulary that identifies which drugs it will cover and at what tier or level. However, Part D prescription drug formularies must include drugs within each therapeutic category and class of covered Part D drugs, though not necessarily all the drugs in each category or class. Any formulary used by a Part D prescription drug plan must be developed and reviewed by a pharmacy and therapeutic committee.

Government payment for some of the costs of prescription drugs may increase demand for products for which NeuroBo receives marketing approval in the U.S. However, any negotiated prices for NeuroBo's products covered by a Part D prescription drug plan will likely be lower than the prices NeuroBo might otherwise obtain. Moreover, while the MMA applies only to drug benefits for Medicare beneficiaries, private payers often follow Medicare coverage policy and payment limitations in setting their own payment rates. Any reduction in payment that results from the MMA may result in a similar reduction in payments from non-governmental payers.

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act of 2010, collectively, the ACA, was enacted with the goal of expanding coverage for the uninsured while at the same time containing overall health care costs. With regard to pharmaceutical products, among other things, the ACA expanded and increased industry rebates for drugs covered under Medicaid programs and made changes to the coverage requirements under the Medicare Part D program. NeuroBo still cannot fully predict the impact of the ACA on pharmaceutical companies as many of the ACA reforms require the promulgation of detailed regulations implementing the statutory provisions which has not yet been completed, and the Centers for Medicare & Medicaid Services has publicly announced that it is analyzing the ACA regulations and policies that have been issued to determine if changes should be made. In addition, although the United States Supreme Court has upheld the constitutionality of most of the ACA, some states have stated their intentions to not implement certain sections of the ACA and some members of Congress and President Trump are still working to repeal the ACA. These challenges add to the uncertainty of the changes enacted as part of ACA.

In addition, in some foreign countries, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing vary widely from country to country. For example, some E.U. jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost-effectiveness of a particular product candidate to currently available therapies. Other member states allow companies to fix their own prices for medicines but monitor and control company profits. Such differences in national pricing regimes may create price differentials between E.U. member states. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any of

NeuroBo's products. Historically, products launched in the European Union do not follow price structures of the United States. In the European Union, the downward pressure on healthcare costs in general, particularly prescription medicines, has become intense. As a result, barriers to entry of new products are becoming increasingly high and patients are unlikely to use a drug product that is not reimbursed by their government.

***New Legislation and Regulations***

From time to time, legislation is drafted, introduced and passed in Congress that could significantly change the statutory provisions governing the testing, approval, manufacturing and marketing of products regulated by the FDA and relevant regulatory authorities outside the United States. In addition to new legislation, regulations and policies are often revised or interpreted by regulatory authorities in ways that may significantly affect NeuroBo's business and its product candidates. It is impossible to predict whether further legislative changes will be enacted or whether regulations, guidance, policies or interpretations will be changed or what the effect of such changes, if any, may be.

***Other U.S. Healthcare Laws and Compliance Requirements***

If NeuroBo obtains regulatory approval of its product candidates and launches them commercially in the United States, it may be subject to various federal and state laws targeting fraud and abuse in the healthcare industry. These laws may impact, among other things, NeuroBo's proposed sales, marketing and education programs. In addition, NeuroBo may be subject to patient privacy regulation by both the federal government and the states in which it conducts its business. Some of the laws that may affect NeuroBo's future ability to operate include:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, to induce, or in return for, the purchase or recommendation of an item or service reimbursable under a federal healthcare program, such as the Medicare and Medicaid programs;

- federal civil and criminal false claims laws and civil monetary penalty laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid, or other third-party payers that are false or fraudulent;

- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which created new federal criminal statutes that prohibit executing a scheme to defraud any healthcare benefit program and making false statements relating to healthcare matters;

- HIPAA, as amended by the Health Information Technology and Clinical Health Act, or HITECH, and its implementing regulations, which imposes certain requirements relating to the privacy, security and transmission of individually identifiable health information;

- the federal transparency requirements under the Physician Payments Sunshine Act require manufacturers of FDA-approved drugs, devices, biologics and medical supplies covered by Medicare or Medicaid to report, on an annual basis, to the Department of Health and Human Services information related to payments and other transfers of value to physicians, teaching hospitals, and certain advanced non-physician health care practitioners and physician ownership and investment interests; and

- state law equivalents of each of the above federal laws, such as anti-kickback and false claims laws, which may apply to items or services reimbursed by any third-party payer, including commercial insurers, and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts. Moreover, some state laws require

pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines, or the relevant compliance guidance promulgated by the federal government, in addition to requiring drug manufacturers to report information related to payments to physicians and other health care providers or marketing expenditures to the extent that those laws impose requirements that are more stringent than the Physician Payments Sunshine Act.

**Employees**

As of September 30, 2019, NeuroBo had 13 full-time employees, two of whom hold a Ph.D. Of these employees, nine were engaged in research and development and two were engaged in general and administrative functions. Seven of NeuroBo's employees are located in the United States, and four are located in South Korea. NeuroBo has no collective bargaining agreements with its employees and has not experienced any work stoppages. NeuroBo considers its relationships with its employees to be good.

**Facilities**

NeuroBo currently leases space in Boston, Massachusetts and in Seoul, South Korea. NeuroBo's research facilities in South Korea, which include lab and office space, consists of approximately 574 square feet. NeuroBo has entered into an agreement for a new corporate headquarters in Boston, which will expire on November 30, 2021.

NeuroBo intends to add new facilities as it adds employees, and believes that suitable additional or substitute space will be available as needed to accommodate any such expansion of its operations.

**Legal Proceedings**

From time to time, NeuroBo may be subject to litigation and claims arising in the ordinary course of business. NeuroBo is not currently a party to any material legal proceedings, and is not aware of any pending or threatened legal proceeding against NeuroBo that it believes could have a material adverse effect on its business, operating results, cash flows or financial condition.

**Corporate Information**

NeuroBo was incorporated under the laws of the State of Delaware in July 2017. NeuroBo's principal executive offices are located at 177 Huntington Avenue, Suite 1700, Boston, MA 02115, and its telephone number is (617) 313-7331. NeuroBo's website address is www.neurobopharma.com. The information contained on, or that can be accessed through, NeuroBo's website is not a part of this proxy statement/prospectus/information statement. NeuroBo has included NeuroBo's website address in this proxy statement/prospectus/information statement solely as an inactive textual reference.

## GEMPHIRE MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

*The following discussion and analysis should be read in conjunction with Gemphire's consolidated financial statements and related notes included elsewhere in this proxy statement/prospectus/information statement. This discussion may contain forward-looking statements based upon current expectations that involve risks and uncertainties, including those set forth in the section entitled "Risk Factors" in proxy statement/prospectus/information statement and elsewhere in this proxy statement/prospectus/information statement. Actual results and the timing of selected events discussed below could differ materially from those expressed in, or implied by, these forward-looking statements.*

**Overview**

Gemphire is a clinical-stage biopharmaceutical company focused on developing and commercializing therapies for the treatment of dyslipidemia, a serious medical condition that increases the risk of life threatening cardiovascular disease, particularly orphan indications such as homozygous familial hypercholesterolemia (HoFH), as well as NAFLD/NASH. Gemphire's therapeutic compound, gemcabene, has been tested as monotherapy and in combination with statins and other drugs in over 1,100 subjects, which Gemphire defines as healthy volunteers and patients, across 25 Phase 1 and Phase 2 clinical trials and has demonstrated promising evidence of efficacy, safety and tolerability.

Gemphire was co-founded in November 2008 as a limited liability company under the name Michigan Life Therapeutics, LLC (MLT) by former Pfizer Inc. employees, including Dr. Charles Bisgaier, who were responsible for licensing exclusive worldwide rights to gemcabene from Pfizer in April 2011. In October 2014, a new entity was incorporated under the name Gemphire Therapeutics Inc. in Delaware. In November 2014, MLT entered into a merger agreement with Gemphire whereby MLT was merged with and into Gemphire, with Gemphire as the surviving entity and all outstanding units of membership interest in MLT were exchanged for shares of common stock of Gemphire. The purpose of the merger was to change the jurisdiction of Gemphire's incorporation from Michigan to Delaware and to convert from a limited liability company to a corporation.

To date, Gemphire's primary activities have been conducting research and development activities, planning and conducting clinical trials, performing business and financial planning, recruiting personnel and raising capital. Gemphire does not have any products approved for sale and has not generated any revenue. Gemphire does not expect to generate revenue until, and unless, the FDA or other regulatory authorities approve, and it successfully commercializes, gemcabene or any other product candidate it may pursue in the future or unless certain development and commercialization milestones are met under the Beijing SL License Agreement. Until such time, if ever, as Gemphire can generate substantial product revenue, it expects to finance its cash needs through a combination of equity and debt financings as well as collaborations, strategic alliances and licensing arrangements. Gemphire's net losses were $23.6 million, $33.4 million and $14.6 million during the years ended December 31, 2018, 2017 and 2016, respectively, and $6.7 million and $13.9 million during the six month periods ended June 30, 2019 and 2018, respectively. As of June 30, 2019, Gemphire had an accumulated deficit of $90.8 million. Gemphire's net losses may fluctuate significantly from quarter-to-quarter and year-to-year, depending on the timing of its preclinical studies, clinical trials and its expenditures on other research and development activities.

Gemphire has funded its operations to date primarily through the issuance and sale of common stock and warrants in public offerings and a private placement, the proceeds of its term loan facility with SVB (the "Term Loan") which it prepaid in full on January 28, 2019, and, prior to Gemphire's initial public offering (the "IPO"), the issuance of preferred stock and convertible notes. As of June 30, 2019, Gemphire had cash and cash equivalents of $3.6 million.

**Key Developments**

***Clinical and Research Program Updates***

During 2016 to 2018, Gemphire initiated and completed three Phase 2b clinical trials for gemcabene in HoFH, hypercholesterolemia, including heterozygous familial hypercholesterolemia (HeFH) and atherosclerotic cardiovascular disease (ASCVD) patients on maximally tolerated statins, and SHTG. Gemphire reported top line data from its 8 patient trial for HoFH (COBALT-1 trial) in the second quarter of 2017, top line data from its 105 patient trial for hypercholesterolemia on high-intensity statin therapy including HeFH and ASCVD patients (ROYAL-1 trial) in the third quarter of 2017, and top line data from its 91 patient trial in severe hypertriglyceridemia (SHTG) patients (INDIGO-1 trial) in the second quarter of 2018. As previously announced, all three of these trials achieved statistical significance for their primary endpoints.

An investigator initiated Phase 2a pediatric NAFLD trial was begun in the fourth quarter of 2017 to study gemcabene in adolescents 12-17 years old. The study enrolled six patients and in August 2018, the Data Safety Monitoring Board (DSMB) halted the trial early due to "unanticipated problems" in the first three patients. Specifically, the primary efficacy endpoint of ALT increased beyond baseline levels in two of these three patients. In addition, all three patients had an increase in the secondary endpoint of liver fat fraction as measured by MRI-PDFF. All patients gained weight and had increased TGs during study treatment, in contrast to data in other gemcabene trials. Patient compliance was compromised as assessed by unused tablets and blood drug levels. Three observations were reported as AEs considered related to gemcabene. No events were reported as SAEs and no Suspected Unexpected Serious Adverse Reaction (SUSAR) report was filed with the FDA by the Primary Investigator. The risk for increased liver fat with gemcabene treatment is unknown at this time. The patients were monitored for 12 months post-final dose and final results are pending. Gemphire intends to work closely with the trial site physicians and other KOLs to identify potential reasons for the unanticipated problems in the pediatric NAFLD study but cannot assure you that it will be possible to determine the reasons for the unexpected problems.

Top-line data was reported in June 2019 from a Phase 2a proof-of-concept trial treating familial partial lipodystrophy disease (FPLD) patients with gemcabene. This study was an investigator-initiated study at the University of Michigan and was initiated in early 2018. Five FPLD patients were enrolled in this open-label study with two patients having lamin A (LMNA) gene mutations and three patients with unknown causes of the condition. Average baseline serum triglyceride levels were 587.3 mg/dL and average MRI-PDFF liver fat fraction was 14.1%. All patients received a 300 mg/day dose of gemcabene for the first 12 weeks, with randomization to either the same dose (n=3) or a higher dose of 600 mg/day (n=2) for the subsequent 12 weeks.

Gemcabene treatment resulted in a median change in serum triglycerides (TG) of –19.6% for the five patients at twelve weeks (the primary endpoint). The range of TG responses was +40.4% to –52.9%, with three patients showing decreases. Secondary endpoints included measurement of liver fat fraction by MRI-PDFF which showed reduction in 2 of the 3 responding patients. Four patients completed treatment and a fifth one discontinued at 22 weeks (with data carried forward as 24 weeks). Gemcabene appeared to be generally safe and well-tolerated in these five patients. There was one serious adverse event of benign paroxysmal positional vertigo, considered unrelated to gemcabene.

As announced in the third quarter of 2018, Gemphire completed and submitted to the FDA the results from its two year rodent carcinogenicity studies. These studies were submitted as part of a request for the FDA to remove the partial clinical hold that prevents Gemphire from conducting human studies of gemcabene that are greater than six months in duration. In response to Gemphire's submission, the FDA did not lift the hold and requested that Gemphire provide additional data, including two preclinical studies, namely, a subchronic (13 week) study of gemcabene in PPARa knock-out mice and a study of gemcabene in *in vitro* PPAR transactivation assays using monkey and

canine PPAR isoforms. Gemphire is working to complete studies requested by the FDA and expects to submit this additional data to the FDA in January 2020. In addition, the FDA informed Gemphire that an End of Phase 2 (EOP2) meeting to reach an agreement on the design of Phase 3 registration and long term safety exposure trials for its target indications in dyslipidemia would not take place until the partial clinical hold is lifted. See *"—Liquidity and Capital Resources*" below regarding Gemphire's need to raise additional capital to continue to fund the further development of gemcabene, including submission of the additional information requested by the FDA to make a decision regarding lifting the partial clinical hold, if the proposed merger is not consummated in a timely fashion.

***Pfizer License Agreement***

In the third quarter of 2018, Gemphire announced that its gemcabene in-licensing agreement with Pfizer was renegotiated providing three additional years to for it to achieve its first commercial sale, by April 2024. See *"Liquidity and Capital Resources—Pfizer Agreement"* below.

***Workforce Reduction***

In September 2018, the Gemphire Board approved a workforce reduction to reduce costs and conserve cash resources in light of the FDA's request for additional data described above and the resulting delay in its Phase 3 trials. The workforce reduction included 5 employees, which represented approximately 33% of Gemphire's workforce at such time, and was completed in the fourth quarter of 2018. Gemphire recorded severance related charges totaling approximately $1.6 million, which included cash severance payments of approximately $0.5 million, a non-cash charge of approximately $1.1 million related to the accelerated vesting of outstanding stock options for certain affected employees, and $30,000 for continued health insurance coverage. Gemphire may incur additional costs not currently contemplated due to events associated with or resulting from the workforce reduction.

***SVB Loan Repayment***

In January 2019, Gemphire prepaid in full all outstanding indebtedness under its Loan Agreement with SVB. See *"Liquidity and Capital Resources—Term Loan"* below.

***Nasdaq Compliance***

On March 20, 2019, Gemphire received written notice from the Nasdaq Stock Market (Nasdaq) stating that Gemphire no longer complied with the minimum stockholders' equity requirement under Nasdaq Listing Rule 5450(b)(1)(A) for continued listing on the Nasdaq Global Market because its stockholders' equity, as reported in its Annual Report on Form 10-K for the year ended December 31, 2018, had fallen below $10 million. The notification letter also indicated that Gemphire does not meet the alternative compliance standards for the Nasdaq Global Market set forth in Nasdaq Listing Rule 5450(b).

Under applicable Nasdaq rules, Gemphire had 45 calendar days from the date of the notification letter, or until May 6, 2019, to submit a plan to regain compliance. On May 6, 2019, the Gemphire Board approved an application to transfer Gemphire common stock to The Nasdaq Capital Market, which has a minimum stockholders' equity requirement of $2.5 million for continued listing, and Gemphire timely submitted its plan and application to transfer Gemphire common stock to The Nasdaq Capital Market. On May 10, 2019 Gemphire's plan was accepted, and its application was approved, resulting in its common stock being listed on the Nasdaq Capital Market effective at the opening of business on May 14, 2019.

On August 8, 2019, Gemphire received a notice from Nasdaq stating that, for the last 30 consecutive business days, the closing bid price for Gemphire common stock was below the $1.00 requirement for continued listing under Nasdaq rules. In accordance with Nasdaq Listing

Rule 5810(c)(3)(A), Gemphire has 180 calendar days, or until February 4, 2020, to regain compliance with the minimum bid price requirement. To regain compliance, the closing bid price of Gemphire common stock must be at least $1.00 per share for a minimum of 10 consecutive business days at any time during this 180-day period. If Gemphire regains compliance with the minimum bid price requirement, Nasdaq will provide Gemphire with written confirmation and will close the matter.

If Gemphire does not regain compliance with the rule by February 4, 2020, Gemphire may be eligible for an additional 180 calendar day compliance period. To qualify, Gemphire would need to meet the continued listing requirement for market value of publicly held shares and all other applicable standards for initial listing on the Nasdaq Capital Market, with the exception of the bid price requirement, and would need to provide written notice of Gemphire's intention to cure the deficiency during the second compliance period by effecting a reverse stock split, if necessary. However, if it appears to Nasdaq that Gemphire will not be able to cure the deficiency, or if Gemphire is not eligible for a second compliance period, Nasdaq will notify Gemphire that Gemphire common stock will be subject to delisting. In the event of such a notification, Gemphire may appeal the determination, but there can be no assurance Nasdaq would grant Gemphire's request for continued listing.

On August 12, 2019, Gemphire received written notice from Nasdaq stating that Gemphire no longer complies with the minimum stockholders' equity requirement under Nasdaq Listing Rule 5550(b)(1) for continued listing on the Nasdaq Capital Market because Gemphire's stockholders' equity, as reported in Gemphire's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2019, had fallen below $2.5 million. The notice also indicated that Gemphire did not meet the alternative compliance standards.

On September 26, 2019, Gemphire submitted its compliance plan to Nasdaq, explaining how Gemphire believes that the completion of its proposed merger will address the stockholders' equity deficiency.

On October 4, 2019, Nasdaq notified Gemphire that it had determined to grant Gemphire an extension until February 10, 2020 to regain compliance. Under the terms of the extension, NeuroBo must receive approval of its initial listing application and Gemphire must consummate the merger on or before February 10, 2020. If NeuroBo fails to receive approval of its initial listing application or Gemphire fails to consummate the merger prior to February 10, 2020, Nasdaq will provide written notification to Gemphire that its securities will be delisted. At that time, Gemphire may appeal Nasdaq's determination to a Listing Qualifications Panel.

***Strategic Alternatives***

In December 2018, Gemphire announced that the Gemphire Board established a committee to oversee a review of strategic alternatives focused on maximizing stockholder value and that it had engaged Ladenburg Thalmann to act as its strategic financial advisor in this process.

***License and Collaboration Agreement***

On July 23, 2019, Gemphire entered into the Beijing SL License Agreement, pursuant to which Gemphire granted Beijing SL an exclusive royalty-bearing license to research, develop, manufacture and commercialize pharmaceutical products comprising, as an active ingredient, gemcabene in the Territory.

***Merger Agreement with NeuroBo***

On July 24, 2019, Gemphire entered into the Original Merger Agreement with NeuroBo as amended by the Merger Agreement Amendment, pursuant to which Gemphire's wholly owned subsidiary, Merger Sub, will merge with and into NeuroBo, with NeuroBo surviving as Gemphire's

wholly owned subsidiary in an all-stock transaction. Pursuant to the Merger Agreement, at the Effective Time, Gemphire will enter into the CVR Agreement, pursuant to which, for each share of Gemphire common stock held, Gemphire Stockholders of record as of immediately prior to the Effective Time will receive one CVR. The discussion below excludes any impact that may result from the proposed merger. The proposed merger has been approved by the boards of directors of both companies and is expected to close in the fourth quarter of 2019, subject to approval by the Gemphire Stockholders and NeuroBo Stockholders as well as other certain other closing conditions. The total fees and costs of the proposed merger are expected to be material to Gemphire's results of operations in 2019 and possibly 2020.

Despite undertaking this process, Gemphire may not be successful in completing the merger, and, even if the merger is completed, it ultimately may not deliver the anticipated benefits or enhance stockholder value. If, for any reason, the merger does not close, the Gemphire Board may elect to dissolve and liquidate Gemphire's assets. If Gemphire is able to secure additional capital to provide Gemphire with necessary financial resources, it may alternatively attempt to pursue another strategic transaction like the merger, sell or otherwise dispose of the various assets of Gemphire or continue to operate the business of Gemphire. Gemphire expects that it would be difficult to secure financing in a timely manner, on favorable terms or at all. If the Gemphire Board were to decide to dissolve and liquidate Gemphire's assets, Gemphire would be required to pay all of Gemphire's debts and contractual obligations, and to set aside certain reserves for potential future claims, and there can be no assurances as to the amount or timing of available cash left, if any, to distribute to Gemphire Stockholders after paying debts and other obligations and setting aside funds for reserves.

**Financial Operations Overview**

***Revenue***

Other than revenue expected to be recognized from the upfront payment under the Beijing SL License Agreement, Gemphire does not expect to generate revenue unless or until it obtains regulatory approval of and commercializes gemcabene or any other product candidate it may pursue in the future or unless certain development and commercialization milestones are met under the Beijing SL License Agreement. If Gemphire fails to complete the development of gemcabene, or any other product candidate it may pursue in the future, in a timely manner, or fails to obtain regulatory approval, its ability to generate future revenue would be compromised.

***Operating Expenses***

Gemphire's operating expenses are classified into two categories: general and administrative and research and development.

*General and Administrative*

General and administrative expenses consist primarily of personnel-related costs, including salaries and share-based compensation costs, for personnel in functions not directly associated with research and administrative activities. Other significant costs include legal fees relating to intellectual property and corporate matters and professional fees for accounting and other services. Gemphire anticipates its general and administrative expenses will continue to trend below comparable prior period levels in the near future as a result of reduced research and development activities, as it works to resolve the six-month clinical hold by the FDA.

*Research and Development*

To date, Gemphire's research and development expenses have related primarily to the clinical stage development of gemcabene. Research and development expenses consist of costs incurred in

performing research and development activities, including compensation for research and development employees, costs associated with preclinical studies and trials, regulatory activities, manufacturing activities to support clinical activities, license fees, nonlegal patent costs, fees paid to external service providers that conduct certain research and development, clinical costs and an allocation of overhead expenses. Research and development costs are expensed as incurred and costs incurred by third parties are expensed as the contracted work is performed. Gemphire accrues for costs incurred as the services are being provided by monitoring the status of the study or project, and the invoices received from its external service providers. Gemphire adjusts its accrual as actual costs become known. Research and development activities are central to Gemphire's business model.

Gemphire anticipates its research and development expenses will continue to trend below comparable prior period levels in the near future as a result of reduced research and development activities, as it work to resolve the six-month clinical hold by the FDA. Gemphire expects that gemcabene or any other product candidate Gemphire may pursue in the future will have higher development costs during its later stages of clinical development, as compared to costs incurred during its earlier stages of development, primarily due to the increased size and duration of the later-stage clinical trials, so Gemphire expects its research and development expenses to continue to trend significantly above comparable prior period levels as development of any product candidates Gemphire may pursue progresses. However, it is difficult to determine with certainty the duration, costs and timing to complete its current or future preclinical programs and clinical trials. The duration, costs and timing of clinical trials and development will depend on a variety of factors that include, but are not limited to, the following:

- per patient trial costs;
- the number of patients that participate in the trials;
- the number of sites included in the trials;
- the countries in which the trials are conducted;
- the length of time required to enroll eligible patients;
- the number of doses that patients receive;
- the drop-out or discontinuation rates of patients;
- potential additional safety monitoring or other studies requested by regulatory agencies;
- the duration of patient follow-up;
- the phase of development of the product candidate;
- arrangements with contract research organizations and other service providers; and
- the efficacy and safety profile of the product candidates.

*Interest Income (Expense), net*

Interest income (expense), net consists of cash and non-cash interest expense attributed to Gemphire's Term Loan while outstanding based on the prime rate in effect, as well as cash interest income from its cash and cash equivalents. Gemphire continued to incur cash and non-cash interest expense related to its Term Loan through the prepayment of the Term Loan on January 28, 2019. Gemphire also expects to earn interest income from the investment of its cash and cash equivalents in future periods.

*Other Expense, net*

Other expense, net relates to non-operating transaction costs associated with Gemphire's previously-announced review of strategic alternatives and foreign currency exchange gains and losses. Foreign currency exchange gains and losses relate to transactions and monetary asset and liability balances denominated in currencies other than the U.S. dollar. Foreign currency gains and losses may continue to fluctuate in the future due to changes in foreign currency exchange rates.

*Provision for Income Taxes*

Provision for income taxes consists of federal and state income taxes in the United States, as well as deferred income taxes and changes in related valuation allowance reflecting the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Currently, there is no provision for income taxes, as Gemphire has incurred operating losses to date, and a full valuation allowance has been provided on the net deferred tax assets as of June 30, 2019 and December 31, 2018.

**Results of Operations**

The following table summarizes Gemphire's operating results for the periods indicated:

| | For the Three Months Ended June 30, | | | For the Six Months Ended June 30, | | |
|---|---|---|---|---|---|---|
| | 2019 | 2018 | Change | 2019 | 2018 | Change |
| | (in thousands) | | | | | |
| Operating expenses: | | | | | | |
| General and administrative | $ 1,115 | $ 2,574 | $ (1,459) | $ 2,522 | $ 4,661 | $ (2,139) |
| Research and development | 1,234 | 3,960 | (2,726) | 2,627 | 8,937 | (6,310) |
| Total operating expenses | 2,349 | 6,534 | (4,185) | 5,149 | 13,598 | (8,449) |
| Loss from operations | (2,349) | (6,534) | 4,185 | (5,149) | (13,598) | 8,449 |
| Interest income (expense), net | 10 | (144) | 154 | (820) | (304) | (516) |
| Other expense | (581) | — | (581) | (752) | — | (752) |
| Loss before income taxes | (2,920) | (6,678) | 3,758 | (6,721) | (13,902) | 7,181 |
| Provision (benefit) for income taxes | — | — | — | — | — | — |
| Net loss | $ (2,920) | $ (6,678) | $ 3,758 | $ (6,721) | $ (13,902) | $ 7,181 |

***Comparison of Three Months Ended June 30, 2019 and 2018***

*General and Administrative*

General and administrative expenses for the three months ended June 30, 2019 decreased to $1.1 million compared to $2.6 million for the three months ended June 30, 2018. The $1.5 million decrease in expenses from the comparable period in 2018 was largely due to a reduction in support activities, focused primarily on personnel costs and professional services, related to Gemphire's ongoing clinical trials.

*Research and Development*

Research and development expenses for the three months ended June 30, 2019 were $1.2 million compared to $4.0 million for the three months ended June 30, 2018. The $2.7 million decrease was primarily attributable to reduced clinical trial activities in the second quarter of 2019 versus the comparable period in 2018

*Interest Income (Expense), net*

Interest income (expense), net for the three months ended June 30, 2019 was $10,000 compared to $(0.1) million for the three months ended June 30, 2018. Interest income (expense),net during the three months ended June 30, 2019 was comprised of interest earned on Gemphire's cash and cash equivalents. Interest income (expense), net during the three months ended June 30, 2018 was comprised primarily of interest expense in connection with Gemphire's Term Loan offset in part by interest income of $55,000. The decrease in interest expense period over period was the result of the Term Loan not being outstanding during the second quarter of 2019. The decrease in interest income period over period was largely the result of the decrease in Gemphire's cash and cash equivalents.

*Other Expense*

Other expense for the three months ended June 30, 2019 comprised non-operating transaction costs associated with Gemphire's previously announced review of strategic alternatives in the amount of $0.6 million. There was no other expense activity during the three months ended June 30, 2018.

***Comparison of Six Months Ended June 30, 2019 and 2018***

*General and Administrative*

General and administrative expenses for the six months ended June 30, 2019 decreased to $2.5 million compared to $4.7 million for the six months ended June 30, 2018. The $2.1 million decrease in expenses from the comparable period in 2018 was largely due to a reduction in support activities, focused primarily on personnel costs and professional services, related to Gemphire's ongoing clinical trials.

*Research and Development*

Research and development expenses for the six months ended June 30, 2019 were $2.6 million compared to $8.9 million for the six months ended June 30, 2018. The $6.3 million decrease was primarily attributable to reduced clinical trial activities through the second quarter in 2019 versus the comparable period in 2018.

*Interest Income (Expense), net*

Interest income (expense), net for the six months ended June 30, 2019 was $(0.8) million, compared to $(0.3) million for the comparable period in 2018. Interest income (expense) for the six months ended June 30, 2019 included interest expense in connection with Gemphire's Term Loan offset in part by interest income of $35,000. Interest income (expense), net for the six months ended June 30, 2018 included interest expense in connection with Gemphire's Term Loan offset in part by interest income of $85,000. The increase in net interest (expense) through the second quarter of 2019 over the comparable period in the prior year was largely the result of non-cash acceleration of debt discount amortization attributed to the prepayment of the Term Loan in January 2019.

*Other Expense*

Other expense for the six months ended June 30, 2019 comprised non-operating transaction costs associated with Gemphire's previously announced review of strategic alternatives in the amount of $0.8 million. There was no other expense activity during the six months ended June 30, 2018.

***Comparison of Years Ended December 31, 2018 and 2017***

The following table summarizes Gemphire's operating results for the periods indicated:

| | For the Year Ended December 31, | | |
|---|---|---|---|
| | 2018 | 2017 | Change |
| | | (in thousands) | |
| Operating expenses: | | | |
| General and administrative | $ 8,493 | $ 10,438 | $ (1,945) |
| Research and development | 14,312 | 22,686 | (8,374) |
| Total operating expenses | 22,805 | 33,124 | (10,319) |
| Loss from operations | (22,805) | (33,124) | 10,319 |
| Interest (expense) income | (654) | (286) | (368) |
| Other expense | (178) | (5) | (173) |
| Loss before income taxes | (23,637) | (33,415) | 9,778 |
| Provision (benefit) for income taxes | — | — | — |
| Net loss | $ (23,637) | $ (33,415) | $ 9,778 |

*General and Administrative*

General and administrative expenses for the year ended December 31, 2018 were $8.5 million compared to $10.4 million for the year ended December 31, 2017. The $1.9 million decrease in expenses from the comparable year in 2017 was largely the result of higher separation costs in the 2017 period when compared to 2018. Gemphire incurred separation costs during the year ended December 31, 2017 for Gemphire's former chief executive officer totaling $0.5 million of cash compensation and $2.1 million of non-cash share-based compensation expense resulting from the acceleration of stock option vesting. In the 2018 period, general and administrative costs in connection with a reduction-in-force totaled $0.2 million of cash compensation and $0.4 million of non-cash share-based compensation expense resulting from the acceleration of stock option vesting, partially offsetting the overall expense decrease period over period. General and administrative expenses included $2.4 million and $4.1 million in share-based compensation expense during the year ended December 31, 2018 and 2017, respectively. Timing of costs related to infrastructure supporting Gemphire's ongoing clinical trials and public company requirements, focused primarily on personnel costs and professional services, were the other primary drivers of the activity during both annual periods in 2018 and 2017.

*Research and Development*

Research and development expenses for the year ended December 31, 2018 were $14.3 million compared to $22.7 million for the year ended December 31, 2017. The $8.4 million decrease was primarily attributable to reduced clinical trial activities in 2018 compared to 2017. The overall decrease period over period was partially offset by separation costs recorded as research and development expenses in connection with the September 2018 reduction-in-workforce, that was completed in the fourth quarter 2018, totaling $0.3 million of cash compensation and $0.7 million of non-cash share-based compensation expense resulting from the acceleration of stock option vesting with no comparable separation costs recorded as research and development expenses in the prior year period. Research and development expenses included $1.8 million and $1.2 million in share-based compensation expense during the year ended December 31, 2018 and 2017, respectively.

*Interest (Expense) Income*

Interest (expense) income for the year ended December 31, 2018 was $(0.7) million compared to $(0.3) million for the year ended December 31, 2017. Interest (expense) income during the year ended December 31, 2018 included interest expense in connection with Gemphire's Term Loan, offset in part by interest income of $0.2 million earned from proceeds received from the IPO, Private Placement and Term Loan that were held in short term, highly liquid money market accounts. Interest (expense) income during the year ended December 31, 2017 included interest expense in connection with Gemphire's Term Loan, offset in part by interest income of $42,000 earned from proceeds received from the IPO, Private Placement and Term Loan that were held in short term, highly liquid money market accounts.

*Other (Expense) Income*

Other (expense) income for the year ended December 31, 2018 comprises non-operating transaction costs associated with Gemphire's previously announced review of strategic alternatives in the amount of $0.2 million, and $1,000 related to foreign currency exchange net losses. Other (expense) income for the year ended December 31, 2017 comprised of foreign currency exchange net losses.

*Provision for Income Taxes*

Provision for income taxes consists of federal and state income taxes in the United States, as well as deferred income taxes and changes in related valuation allowance reflecting the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Currently, there is no provision for income taxes, as Gemphire has incurred operating losses to date, and a full valuation allowance has been provided on the net deferred tax assets as of December 31, 2018 and December 31, 2017.

***Comparison of Years Ended December 31, 2017 and 2016***

The following table summarizes Gemphire's operating results for the periods indicated:

| | For the Year Ended December 31, | | |
|---|---|---|---|
| | 2017 | 2016 | Change |
| | | (in thousands) | |
| Operating expenses: | | | |
| General and administrative | $ 10,438 | $ 5,956 | $ 4,482 |
| Research and development | 22,686 | 8,740 | 13,946 |
| Total operating expenses | 33,124 | 14,696 | 18,428 |
| Loss from operations | (33,124) | (14,696) | (18,428) |
| Interest income (expense) | (286) | 114 | (400) |
| Other (expense) income | (5) | (4) | (1) |
| Loss before income taxes | (33,415) | (14,586) | (18,829) |
| Provision (benefit) for income taxes | — | — | — |
| Net loss | $ (33,415) | $ (14,586) | $ (18,829) |

*General and Administrative*

General and administrative expenses for the year ended December 31, 2017 were $10.4 million compared to $6.0 million for the year ended December 31, 2016. The $4.5 million increase was primarily attributable to an increase in staffing and professional services associated largely with supporting Gemphire's clinical trials and becoming a public company in August 2016 as well as

separation costs for Gemphire's former chief executive officer totaling $0.5 million of cash compensation and $2.1 million of non-cash share-based compensation expense resulting from the acceleration of stock option vesting. General and administrative expenses included $4.1 million and $1.2 million in share-based compensation expense during the year ended December 31, 2017 and 2016, respectively.

*Research and Development*

Research and development expenses for the year ended December 31, 2017 were $22.7 million compared to $8.7 million for the year ended December 31, 2016. The $13.9 million increase was primarily attributable to increased staffing and fees paid to external service providers for clinical trial development, regulatory consulting, preclinical studies and manufacturing activities to support clinical advancement of gemcabene. Research and development expenses included $1.2 million and $0.6 million in share-based compensation expense during the year ended December 31, 2017 and 2016, respectively.

*Interest Income (Expense)*

Interest (expense) income for the year ended December 31, 2017 was $(0.3) million compared to $0.1 million for the year ended December 31, 2016. Interest (expense) income during the year ended December 31, 2017 included interest expense in connection with Gemphire's Term Loan, offset in part by interest income of $42,000 earned from proceeds received from the IPO, Gemphire's issuance of units in a private placement and the Term Loan that were held in short term, highly liquid money market accounts. Interest (expense) income during the year ended December 31, 2016, on a net basis, represented non-cash interest income from the amortization of the note premium associated with certain convertible notes coupled with the bifurcation of the conversion premium liability and subsequent fair value adjustments associated with such notes, which were largely offset by interest on principal and discount amortization related to the such notes, which were converted to common stock immediately prior to the closing of the IPO. In addition, interest earnings of $23,000 from cash and cash equivalents were recorded during the year ended December 31, 2016.

*Provision for Income Taxes*

Provision for income taxes consists of federal and state income taxes in the United States, as well as deferred income taxes and changes in related valuation allowance reflecting the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Currently, there is no provision for income taxes, as Gemphire has incurred operating losses to date, and a full valuation allowance has been provided on the net deferred tax assets as of December 31, 2017 and December 31, 2016.

***Cash Flows***

The following table summarizes Gemphire's cash flows for the periods indicated:

| | For the Six Months Ended June 30, | |
|---|---|---|
| | 2019 | 2018 |
| | (in thousands) | |
| Net cash used in operating activities | $ (5,037) | $ (13,514) |
| Net cash provided by (used in) investing activities | — | — |
| Net cash (used in) provided by financing activities | (10,259) | 23,080 |
| Net (decrease) increase in cash, cash equivalents and restricted cash | $ (15,296) | $ 9,566 |

***Cash Flow from Operating Activities***

For the six months ended June 30, 2019, cash used in operating activities of $5.0 million was attributable to a net loss of $6.7 million as adjusted by $0.9 million in share-based compensation and non-cash interest expense of $0.8 million offset by a net change of $(49,000) in Gemphire's operating assets and liabilities. The change in operating assets and liabilities was primarily attributable to a decrease in Gemphire's accounts payable and Gemphire's prepaid expenses associated with fluctuations in Gemphire's operating activities.

For the six months ended June 30, 2018, cash used in operating activities of $13.5 million was attributable to a net loss of $13.9 million as adjusted by $1.9 million in share-based compensation and non-cash interest expense of $0.2 million offset by a net change of $1.7 million in Gemphire's operating assets and liabilities. The change in operating assets and liabilities was primarily attributable to a net decrease in Gemphire's accounts payable, accrued liabilities and prepaid expenses associated with fluctuations in Gemphire's operating activities.

***Cash Flow from Investing Activities***

There were no sources or uses of funds from investing activities for all periods presented.

***Cash Flow from Financing Activities***

Net cash used in financing activities during the six months ended June 30, 2019 of $10.3 million related the repayment of Gemphire's Term Loan.

Net cash provided by financing activities during the six months ended June 30, 2018 of $23.1 million related primarily to proceeds received from Gemphire's follow-on offering, net of discounts, commissions and other costs totaling $2.1 million paid through June 30, 2018.

***Comparison of Fiscal Years Ended December 31, 2018, 2017 and 2016***

The following table summarizes Gemphire's cash flows for the periods indicated:

| | For the Year Ended December 31, | | |
|---|---|---|---|
| | 2018 | 2017 | 2016 |
| | | (in thousands) | |
| Net cash used in operating activities | $ (21,911) | $ (26,901) | $ (11,043) |
| Net cash provided by (used in) investing activities | — | — | — |
| Net cash provided by financing activities | 22,392 | 21,341 | 31,456 |
| Net increase (decrease) in cash | $ 481 | $ (5,560) | $ 20,413 |

*Cash Flow from Operating Activities*

For the year ended December 31, 2018, cash used in operating activities of $21.9 million was attributable to a net loss of $23.6 million adjusted by $4.1 million in share-based compensation, non-cash interest expense of $0.3 million, and a net change of $2.8 million in Gemphire's net operating assets and liabilities. The change in operating assets and liabilities was primarily attributable to a decrease in Gemphire's accounts payable and accrued liabilities and by an increase in prepaid expenses associated with fluctuations in Gemphire's operating activities.

For the year ended December 31, 2017, cash used in operating activities of $26.9 million was attributable to a net loss of $33.4 million offset by $5.3 million in share-based compensation, non-cash interest expense of $0.1 million and a net change of $1.1 million in Gemphire's net operating assets and liabilities. The change in operating assets and liabilities was primarily attributable to a net increase

in Gemphire's accounts payable and accrued liabilities and by a net decrease in prepaid expenses associated with fluctuations in Gemphire's operating activities.

For the year ended December 31, 2016, cash used in operating activities of $11.0 million was attributable to a net loss of $14.6 million which included $1.6 million in non-cash expenses and a net change of $1.9 million in Gemphire's net operating assets and liabilities. The non-cash (income) expenses consisted of $1.7 million of share-based compensation offset by net non-cash interest income of $(0.1) million related to both certain convertible notes and the premium conversion derivative. The net change in operating assets and liabilities was primarily attributable to increases in Gemphire's accounts payable and accrued liabilities associated with Gemphire's increased operating expenses.

*Cash Flow from Investing Activities*

There were no sources or uses of funds from investing activities for all periods presented.

*Cash Flow from Financing Activities*

Net cash provided by financing activities during the year ended December 31, 2018 of $22.4 million related primarily to proceeds received from Gemphire's follow-on offering in the first quarter of 2018 of $23.1 million, net of discounts, commissions and other costs totaling $2.1 million, and to repayment of Term Loan principal in the amount of $0.7 million.

Net cash provided by financing activities during the year ended December 31, 2017 of $21.3 million included $11.3 million related to the proceeds from Gemphire's March 2017 private placement, net of discounts, commissions and other costs totaling $1.3 million paid through December 31, 2017 as well as $9.9 million in proceeds from the issuance of Gemphire's Term Loan, net of issue costs paid through December 31, 2017 of $89,000. In addition, $21,000 in offering costs were paid in 2017 related to the public offering of common stock that was completed in the first quarter of 2018.

Net cash provided by financing activities during the year ended December 31, 2016 was $31.5 million consisting of $26.3 million in IPO proceeds, net of discounts, commissions and other offering costs of $4.0 million paid through December 31, 2016, and $5.1 million in proceeds from the issuance of convertible notes in February 2016 and April 2016 net of issuance costs in the amount of $10,000.

***Liquidity and Capital Resources***

As of June 30, 2019, Gemphire's principal sources of liquidity consisted of cash and cash equivalents of approximately $3.6 million. Gemphire's cash and cash equivalents are invested in cash deposits and money market accounts. Gemphire has not generated any revenue, and Gemphire anticipates that it will continue to incur net losses for the foreseeable future despite the revenue expected to be recognized from the up-front payment in connection with the Beijing SL License Agreement. Gemphire has funded its operations to date primarily through the issuance and sale of common stock and warrants in public offerings and a private placement, proceeds from its Term Loan, which was prepaid in full on January 28, 2019, and, prior to Gemphire's IPO, the issuance of preferred stock and convertible notes in private placements.

- In the first quarter of 2018, Gemphire completed an underwritten public offering of 3,592,858 shares of Gemphire common stock, including 450,000 shares of Gemphire common stock purchased by the underwriters upon the partial exercise of their overallotment option, at the public offering price of $7.00 per share. Gemphire received net proceeds of approximately $23.0 million after deducting underwriting discounts and commissions and offering expenses.

- On July 24, 2017, Gemphire entered into a Loan and Security Agreement (the Loan Agreement) with Silicon Valley Bank (SVB). The Loan Agreement established a term loan

facility in the aggregate principal amount of up to $15.0 million to be funded in several tranches. Gemphire drew $10.0 million under the Loan Agreement on July 24, 2017. The Term loan was repaid effective January 28, 2019.

- On March 15, 2017, Gemphire completed a private placement of 1,324,256 units at a price of $9.47 per unit for net proceeds of approximately $11.3 million after deducting offering expenses. Each unit consisted of one share of Gemphire common stock and a warrant to purchase 0.75 shares of common stock. The warrants have an exercise price of $10.40 per share and are exercisable for a period of five years from the date of issuance. On April 20, 2017, the registration statement on Form S-1 (File No 333-217296) for the resale of the shares of common stock issued in the private placement and the shares of common stock to be issued upon exercise of the warrants issued in the private placement was declared effective by the SEC, and on September 1, 2017, Gemphire filed a post-effective amendment to convert the registration statement into Form S-3 for the registration of any unsold private placement shares, which included an updated prospectus relating to such unsold shares.

- In August 2016, Gemphire closed its IPO. Gemphire sold an aggregate of 3,027,755 shares of Gemphire common stock, including 27,755 shares of Gemphire common stock purchased by the underwriters upon the partial exercise of their overallotment option, at a public offering price of $10.00 per share. Gemphire received net proceeds of approximately $26.1 million after deducting underwriting discounts and commissions and offering expenses. All of Gemphire's outstanding preferred stock and convertible notes outstanding prior to its IPO converted into shares of Gemphire common stock immediately prior to the closing of the IPO.

Gemphire has no current source of revenue to sustain its present activities, and, other than revenue expected to be recognized from the upfront payment under the Beijing SL License Agreement does not expect to generate revenue until, and unless, the FDA or other regulatory authorities approve, and Gemphire successfully commercializes, gemcabene or any other product candidate Gemphire may pursue in the future or unless certain development and commercialization milestones are met under the Beijing SL License Agreement. Until such time, if ever, as Gemphire can generate substantial product revenue, Gemphire expects to finance its cash needs through a combination of equity and debt financings as well as collaborations, strategic alliances and licensing arrangements. Other than the upfront payment under the Beijing SL License Agreement, Gemphire does not have any committed external source of funds.

Gemphire's ability to raise additional funds and the terms upon which Gemphire is able to raise funds have been severely harmed by the FDA's decision not to lift the partial clinical hold on gemcabene and request that Gemphire provide additional data and the termination of the investigator initiated Phase 2a pediatric NAFLD trial, each in August 2018. To the extent that Gemphire seeks and is able to raise additional capital through the sale of equity or convertible debt securities, the ownership interest of Gemphire Stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Similar to the restrictions previously in place under Gemphire's Loan Agreement, additional debt financing, if available, may involve agreements that include covenants limiting or restricting Gemphire's ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If Gemphire raises additional funds through collaborations, strategic alliances or licensing arrangements with pharmaceutical partners, Gemphire may have to relinquish valuable rights to its technologies, future revenue streams or grant licenses on terms that may not be favorable to Gemphire. If Gemphire is unable to raise additional funds through equity or debt financings or through collaborations, strategic alliances or licensing arrangements when needed or if the proposed merger is not consummated, Gemphire may be required to significantly reduce or terminate Gemphire's operations, delay, further scale back or discontinue the development of gemcabene, or grant rights to develop and market gemcabene that Gemphire would otherwise prefer to develop and market

ourselves. The condensed financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Gemphire believes its cash on hand, including amounts received from Beijing SL pursuant to the upfront payment, will be sufficient to fund operations through the fourth quarter of 2019, excluding transaction costs associated with the merger (which Gemphire expects to pay upon the closing), and if for any reason the merger does not close, Gemphire would need to raise additional capital to continue to fund the further development of gemcabene and its operations thereafter, including submission of the additional information requested by the FDA to make a decision regarding lifting the partial clinical hold. Gemphire's business is subject to numerous uncertainties, and Gemphire has based these estimates on assumptions that may prove to be substantially different than Gemphire currently anticipates and may need additional financing sooner than it expects. Additionally, the process of advancing early-stage product candidates and testing product candidates in clinical trials is costly, and the timing of progress in these clinical trials is uncertain. Gemphire's ability to successfully transition to profitability will be dependent upon achieving a level of product sales adequate to support its cost structure. Gemphire cannot assure you that it will ever be profitable or generate positive cash flow from operating activities.

Failure to secure any necessary financing in a timely manner and on favorable terms or if the proposed merger is not consummated in a timely manner would require Gemphire to delay or abandon clinical development plans and the Gemphire Board may determine to cease Gemphire's operations. If the Gemphire Board were to decide to dissolve and liquidate Gemphire's assets, Gemphire would be required to pay all of its debts and contractual obligations, and to set aside certain reserves for potential future claims, and there can be no assurances as to the amount or timing of available cash left, if any, to distribute to stockholders after paying Gemphire's debts and other obligations and setting aside funds for reserves.

Gemphire does not believe that its current expenses are indicative of the costs Gemphire may incur in the future in connection with the development and commercialization of any product candidate if it consummates the merger or raises additional capital to continue Gemphire's operations. Gemphire's future funding requirements will depend on many factors, including:

- Gemphire's ability to consummate the merger with NeuroBo;
- the level of development and commercialization efforts of Beijing SL with respect to gemcabene and the receipt of milestone and other payments, if any, from Beijing SL under the Beijing SL License Agreement;
- the scope, rate of progress and cost of Gemphire's preclinical and clinical trials for any product candidate in Gemphire's future pipeline and results of future clinical trials;
- the cost and timing of regulatory filings and approvals for any product candidates that successfully complete clinical trials;
- the timing and nature of any strategic transactions that Gemphire undertakes, including potential partnerships;
- the effect of competing technological and market developments;
- the cost incurred in responding to actions by activist stockholders; and
- the cost of filing, prosecuting, defending and enforcing Gemphire's intellectual property rights.

Gemphire currently has an effective shelf registration statement on Form S-3 on file with the SEC which expires in September 2020. The shelf registration statement permits the offering, issuance and sale of up to an aggregate offering price of $175 million of common stock, preferred stock, debt securities, warrants and subscription rights, of which $50 million may be offered, issued and sold under

an "at-the-market" (ATM) equity distribution agreement with Piper Jaffray & Co. However, the amounts available under the shelf registration statement, including the ATM program, will be significantly limited as long as Gemphire's public float remains below $75 million, which, given Gemphire's currently depressed stock price, limits Gemphire's ability to obtain meaningful funding through the ATM program or the shelf registration statement at this time, although Gemphire could still raise funds through a registration statement on Form S-1 or through private placements.

***Beijing SL Agreement***

On July 23, 2019, Gemphire entered into the Beijing SL License Agreement, pursuant to which Gemphire granted Beijing SL an exclusive royalty-bearing license to research, develop, manufacture and commercialize pharmaceutical products comprising, as an active ingredient, gemcabene in the Territory and Beijing SL agreed to make an upfront gross payment of $2.5 million, which was received in October 2019, and to pay certain milestone and royalty payments if certain development and commercialization milestones are met.

***Contractual Obligations and Commitments***

The following table summarizes Gemphire's contractual obligations as of December 31, 2018, which represent material expected or contractually committed future obligations. Please see *"—Term Loan"* below regarding Gemphire's prepayment of the Term Loan subsequent to December 31, 2018.

| | Payments Due by Period | | | | |
|---|---|---|---|---|---|
| | Less than 1 year | 1 - 3 Years | 3 - 5 Years | More than 5 years | Total |
| | | | (in thousands) | | |
| Term loan | $ 4,826 | $ 5,949 | $ — | $ — | $ 10,775 |
| Facility lease | 71 | — | — | — | 71 |
| Total | $ 4,897 | $ 5,949 | $ — | $ — | $ 10,846 |

***Term Loan***

On January 25, 2019, Gemphire agreed to prepay in full all outstanding indebtedness under the Loan Agreement which prepayment was effective January 28, 2019. Upon payoff, any unfunded commitments to make credit extensions or financial accommodations to Gemphire terminated, and all security interests and other liens granted to or held by SVB as security for the obligations were terminated and automatically released, except those that were specified as surviving termination. As of the date of payment, Gemphire had approximately $8.9 million in outstanding borrowings and approximately $1.0 million in outstanding interest and fees under the Loan Agreement, including the final payment fee equal to 10% of the original aggregate principal amount of the Term Loan funded by SVB and drawn by Gemphire, which it repaid in full at the time of payment.

The obligations, liabilities, covenants, and terms that are expressly specified in the Loan Agreement and any other related loan and collateral security documents issued by Gemphire to SVB in connection with the transaction evidenced by the Loan Agreement as surviving termination shall continue to survive notwithstanding the payment, including without limitation, its indemnity obligations and its obligation to pay to SVB a success fee of 3.5% of the funded principal amount of the Term Loan in the event any of the following occur on or before 5:00 PM, Eastern time, on July 24, 2024: (a) Gemphire receives FDA approval for any new drug application for gemcabene, (b) a sale or other transfer of all or substantially all of Gemphire's assets occurs, (c) a merger or consolidation of Gemphire with or into another person or entity occurs where the holders of Gemphire's outstanding voting equity securities immediately prior to such merger or consolidation hold less than a majority of the issued and outstanding voting equity securities of the successor immediately following such

transaction or (d) any sale by the holders of Gemphire's outstanding voting equity securities where such holders do not continue to hold at least a majority of Gemphire's issued and outstanding voting equity securities immediately following the consummation of such transaction. The merger, upon completion, will trigger a success fee of $350,000. In addition, the warrant to purchase 36,000 shares (subject to adjustment) of Gemphire common stock dated as of July 31, 2018 between Gemphire and SVB will remain outstanding and exercisable in accordance with its terms.

***Facility Lease***

In May 2016, Gemphire entered into a non-cancellable facility lease. The term of the agreement was September 1, 2016 to August 31, 2019 and monthly base rent was approximately $8,900 during the last year of the lease agreement. The facility lease expired in August 2019 and no replacement facility lease was executed.

***Pfizer Agreement***

The Pfizer Agreement grants Gemphire certain patent rights and a non-exclusive royalty bearing right and license to certain related data to make, use, develop, commercialize, import and otherwise exploit the clinical product candidate gemcabene. Pfizer retains the right to make, use and import gemcabene solely for internal research purposes.

In partial exchange for the rights granted by Pfizer, Gemphire agreed to issue shares of its common stock to Pfizer representing 15% of its fully diluted capital at the close of its first arms-length Series A financing, which occurred on March 31, 2015.

Gemphire also agreed to make milestone payments totaling up to $37 million upon the achievement of certain milestones, including the first new drug application (or its foreign equivalent) in any country, regulatory approval in each of the United States, Europe and Japan, the first anniversary of the first regulatory approval in any country, and upon achieving certain aggregate sales levels of gemcabene. Future milestone payments under the Pfizer Agreement, if any, are not expected to begin for at least several years and extend over a number of subsequent years.

In addition, Gemphire agreed to pay Pfizer tiered royalties on a country-by-country basis based upon the annual amount of net sales, as specified in the Pfizer Agreement, until the later of: (a) five (5) years after the first commercial sale in such country; (b) the expiration of all regulatory or data exclusivity for gemcabene in such country; and (c) the expiration or abandonment of the last valid claim of the licensed patents, including any patent term extensions or supplemental protection certificates in such country (collectively, the "Pfizer Royalty Term"). The royalty rates range from the high single digits to the mid-teens depending on the level of net sales. The royalty rates are subject to reduction during certain periods when therapeutically-equivalent generic products represents certain market share of prescription volume in the country. Under the Pfizer Agreement, Gemphire is obligated to use commercially reasonable efforts to develop and commercialize gemcabene.

The Pfizer Agreement will expire upon expiration of the last Pfizer Royalty Term. On expiration (but not earlier termination), Gemphire will have a perpetual, exclusive, fully paid-up, royalty-free license under the licensed patent rights and related data to make, use, develop, commercialize, import and otherwise exploit the clinical product candidate gemcabene. Either party may terminate the Pfizer Agreement for the other party's material breach following a cure period or immediately upon certain insolvency events relating to the other party. Pfizer may immediately terminate the Pfizer Agreement in the event that (i) Gemphire or any of its affiliates or sublicenses contest or challenge, or support or assist any third party to contest or challenge, Pfizer's ownership of or rights in, or the validity, enforceability or scope of any of the patents licensed under the Pfizer Agreement or (ii) Gemphire or any of its affiliates or sublicensees fail to achieve the first commercial sale in at least one country by April 16, 2024. Furthermore, upon termination of the Pfizer Agreement by Pfizer for any of the

foregoing reasons, Gemphire grants Pfizer a non-exclusive, fully paid-up, royalty free, worldwide, transferrable, perpetual and irrevocable license to use any intellectual property rights arising from the development or commercialization of gemcabene by Gemphire and any trademarks identifying gemcabene and agrees to transfer regulatory filings and approvals to Pfizer or permit Pfizer to cross-reference and rely on such regulatory filings and approvals for gemcabene. Gemphire may terminate the Pfizer Agreement for convenience upon 90 days' written notice and payment of an early termination fee.

***Other Commitments***

In the course of Gemphire's normal operations, it has entered into cancellable purchase commitments with its suppliers for various key research and clinical services and raw materials. The purchase commitments covered by these arrangements are subject to change based on Gemphire's research and development efforts.

In addition, Gemphire has entered into agreements with investment banks for advisory services related to certain transactions that, if successfully consummated, would require Gemphire to pay to a success fee.

**Critical Accounting Policies and Estimates**

Gemphire's financial statements are prepared in accordance with GAAP. These accounting principles require Gemphire to make estimates and judgments that can affect the reported amounts of assets and liabilities as of the date of the financial statements as well as the reported amounts of revenue and expense during the periods presented. Gemphire believes that the estimates and judgments upon which it relies are reasonably based upon information available to it at the time that it makes these estimates and judgments. To the extent that there are material differences between these estimates and actual results, Gemphire's financial results will be affected. Gemphire's accounting policies are more fully described in Note 2—"Summary of Significant Accounting Policies" to Gemphire's condensed financial statements appearing elsewhere in this proxy statement/prospectus/information statement.

**Off-Balance Sheet Arrangements**

Gemphire did not have during the periods presented, and it does not currently have, any off-balance sheet arrangements as defined under the rules and regulations of the Securities and Exchange Commission.

**Recent Accounting Pronouncements**

Refer to Note 2—"Summary of Significant Accounting Policies" to Gemphire's condensed financial statements appearing elsewhere in this proxy statement/prospectus/information statement for a discussion of recently issued accounting pronouncements.

## NEUROBO MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

*You should read the following discussion and analysis of NeuroBo's financial condition and results of operations together with NeuroBo's consolidated financial statements and the related notes included elsewhere in this proxy statement/prospectus/information statement. Some of the information contained in this discussion and analysis or set forth elsewhere in this proxy statement/prospectus/information statement, including information with respect to NeuroBo's plans and strategy for NeuroBo's business and related financing, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" section of this proxy statement/prospectus/information statement, NeuroBo's actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.*

### Overview

NeuroBo is a clinical-stage biotechnology company focused on developing novel pharmaceuticals to treat neurodegenerative disorders affecting millions of patients worldwide. NeuroBo is focused on the development of a treatment for diabetic neuropathic pain, or PDN, with its lead product candidate, NB-01, expected to commence Phase 3 clinical development as a first-line pain management therapy for PDN in the first quarter of 2020. NeuroBo believes that NB-01 could also treat a range of neuropathic conditions, including chemotherapy-induced peripheral neuropathy and post-traumatic peripheral neuropathy. NeuroBo's second product candidate, NB-02, has the potential to treat the symptoms of cognitive impairment and modify the natural history of neurodegenerative diseases associated with the misfunction of a protein called tau, and with amyloid beta plaque deposition. NB-02 is ready for the submission of an investigational new drug application, or IND, to the Food and Drug Administration, or FDA. NeuroBo believes that leveraging the therapeutic advantages of its pipeline will drive a paradigm shift in the treatment of PDN, peripheral neuropathy and other neurodegenerative diseases.

NeuroBo was established in July 2017 and its South Korean subsidiary, NeuroBo Co. Ltd., in February 2018 to advance NB-01 and NB-02, which were originally developed by the South Korean pharmaceutical company Dong-A ST. NB-01 has been in-licensed by NeuroBo from Dong-A ST, with exclusive worldwide rights except for South Korea. NB-01 has successfully completed two Phase 2 proof-of-concept clinical trials, and the Phase 3 clinical program for NB-01 is expected to commence in the first quarter of 2020. NeuroBo acquired NB-02 from Dong-A ST, and NeuroBo holds the full worldwide commercial rights for NB-02 (with the exception of certain notice rights and rights to negotiate retained by Dong-A in the event that NeuroBo wishes to sell NB-02 in the Republic of Korea). Dong-A remains a related party to NeuroBo through a manufacturing and supply agreement with NeuroBo to provide the final drug substance for NB-01 and NB-02. The foundation of NeuroBo's current platform is a mechanism-based approach to address multi-target diseases such as neuropathic pain and neurodegeneration. This approach will be implemented by directing multi-component natural drugs toward specific pathways that are implicated in neuropathic pain and neurodegeneration.

Since NeuroBo's inception, NeuroBo has devoted substantially all of its efforts and financial resources to organizing and staffing NeuroBo, business planning, raising capital, acquiring product candidates, securing related intellectual property rights and conducting clinical development activities for its product candidates. NeuroBo does not have any products approved for sale and has not generated any revenue from product sales. NeuroBo has funded its operations to date with proceeds from sales of preferred stock, common stock and from the issuance of convertible debt. Through June 30, 2019, NeuroBo had received net proceeds of $41.0 million from sales of its preferred stock and common stock. In February 2018, NeuroBo received gross proceeds of $0.5 million from the issuance of convertible notes.

NeuroBo has incurred significant operating losses since inception. NeuroBo's ability to generate product revenue sufficient to achieve profitability will depend on the successful development and eventual commercialization of one or more of NeuroBo's current or future product candidates. NeuroBo's net losses were less than $0.1 million and $15.5 million for the period from inception (July 25, 2017) to December 31, 2017 and for the year ended December 31, 2018, respectively, and $4.4 million for the six months ended June 30, 2019. As of June 30, 2019, NeuroBo had an accumulated deficit of $19.9 million. NeuroBo expects to continue to incur significant expenses and increasing operating losses for at least the next several years. NeuroBo expects that its expenses and capital requirements will increase substantially in connection with its ongoing activities, particularly if and as NeuroBo:

- continues the ongoing and planned clinical development for NB-01 and NB-02;
- initiates preclinical studies and clinical trials with respect to any additional indications for its current product candidates and any future product candidates that NeuroBo may pursue;
- acquires or in-licenses other product candidates and/or technologies;
- develops, maintains, expands and protects its intellectual property portfolio;
- hires additional clinical, scientific and commercial personnel;
- establishes a commercial manufacturing source and secures supply chain capacity sufficient to provide commercial quantities of any product candidates for which it may obtain regulatory approval;
- seeks regulatory approvals for any product candidates that successfully complete clinical trials;
- establishes a sales, marketing and distribution infrastructure and/or enters into partnership arrangements to commercialize any products for which it may obtain regulatory approval; or
- adds administrative, operational, financial and management information systems and personnel, including personnel to support its product development and planned future commercialization efforts, and to support its transition to a public reporting company following the completion of the merger.

NeuroBo will not generate revenue from product sales unless and until NeuroBo successfully completes clinical development and obtains regulatory approval for its product candidates. If NeuroBo obtains regulatory approval for any of its product candidates and does not enter into a commercialization partnership, NeuroBo expects to incur significant expenses related to developing NeuroBo's internal commercialization capability to support product sales, marketing and distribution.

As a result, NeuroBo will need substantial additional funding to support its continuing operations and pursue its business strategy. Until such time as NeuroBo can generate significant revenue from product sales, if ever, NeuroBo expects to finance its operations primarily through proceeds derived from the sale of equity. NeuroBo also plans to pursue additional funding from outside sources, including proceeds from debt financings or other capital sources, which may include collaborations with other companies or other strategic transactions. NeuroBo may not be able to raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, if at all. If NeuroBo fails to raise capital or enter into such agreements as, and when needed, NeuroBo may have to significantly delay, scale back or discontinue the development and commercialization of one or more of its product candidates or delay its pursuit of potential in-licenses or acquisitions.

Because of the numerous risks and uncertainties associated with product development, NeuroBo is unable to predict the timing or amount of increased expenses or when or if it will be able to achieve or maintain profitability. Even if NeuroBo is able to generate product sales, NeuroBo may not become profitable. If NeuroBo fails to become profitable or is unable to sustain profitability on a continuing

basis, then NeuroBo may be unable to continue its operations at planned levels and could be forced to reduce or terminate its operations.

NeuroBo expects that its existing cash and cash equivalents will be sufficient to fund its operating expenses and capital expenditure requirements into July 2020. NeuroBo has based this estimate on assumptions that may prove to be wrong, and NeuroBo could exhaust its available capital resources sooner than it expects. See "*—Liquidity and Capital Resources*." Beyond that point, NeuroBo will need to raise additional capital to finance its operations, which cannot be assured. NeuroBo has concluded that this circumstance raises substantial doubt about its ability to continue as a going concern within one year after the August 30, 2019 issuance date of its annual consolidated financial statements for the year ended December 31, 2018 and its interim consolidated financial statements for the six months ended June 30, 2019. See Note 1 of NeuroBo's consolidated financial statements included elsewhere in this proxy statement/prospectus/information statement for additional information on its assessment.

Similarly, in its report on NeuroBo's consolidated financial statements for the year ended December 31, 2018, NeuroBo's independent registered public accounting firm included an explanatory paragraph stating that NeuroBo's recurring losses from operations and the need for additional funding to finance NeuroBo's operations raise substantial doubt about its ability to continue as a going concern.

**Proposed Merger with Gemphire**

On July 24, 2019, Gemphire, Merger Sub and NeuroBo entered into the Original Merger Agreement, as amended by the Merger Agreement Amendment, pursuant to which Merger Sub, a wholly owned subsidiary of Gemphire, will merge with and into NeuroBo, with NeuroBo continuing as a wholly owned subsidiary of Gemphire and the surviving corporation of the merger. Gemphire and NeuroBo believe that the merger will result in a clinical-stage biopharmaceutical company focused on developing novel pharmaceuticals to treat neurodegenerative disorders affecting millions of patients worldwide.

Although Gemphire is the legal acquirer and will issue shares of its common stock to affect the merger with NeuroBo, NeuroBo is considered the accounting acquirer. In accordance with the accounting guidance under ASU 2017-01, the Merger will be accounted for as an asset acquisition. Accordingly, the assets and liabilities of Gemphire will be recorded as of the closing date of the Merger at the purchase price of the accounting acquirer, NeuroBo. NeuroBo will have to allocate the total purchase price among the individual assets acquired on a fair value basis. Determination of fair value of certain assets acquired is dependent upon certain valuations that have yet to commence or progress to a stage where there is sufficient information for a definitive measurement. A final determination of these estimated fair values, which cannot be made prior to the completion of the transaction, will be based on the actual net tangible assets of Gemphire that exist as of the date of the completion of the transaction. Therefore, the actual purchase price allocation may differ from the amounts reflected in the unaudited pro forma condensed combined finacial statements. The unaudited pro forma condensed consolidated financial statements include the accounts of Gemphire since the effective date of merger and NeuroBo since inception.

**Components of Results of Operations**

***Revenue***

To date, NeuroBo has not generated any revenue from product sales, collaborations with other companies, government grants or any other source, and does not expect to generate any revenue in the foreseeable future. If NeuroBo's product development efforts for its product candidates are successful and result in regulatory approval, NeuroBo may generate revenue in the future from product sales. NeuroBo cannot predict if, when, or to what extent it will generate revenue from the commercialization

and sale of its product candidates. NeuroBo may never succeed in obtaining regulatory approval for any of its product candidates.

***Cost of Revenue***

To date, NeuroBo has not generated any revenue and thus has no cost of revenue. If NeuroBo's development efforts for its product candidates are successful and result in regulatory approval, NeuroBo may generate revenue in the future from product sales and have corresponding cost of revenue. NeuroBo cannot predict if, when, or to what extent it will incur costs from revenue from the commercialization and sale of its product candidates. NeuroBo may never succeed in obtaining regulatory approval for any of its product candidates. If NeuroBo is successful at commercialization, the cost of revenues would include all costs directly related to providing the commercial asset, which would consist primarily of labor, material, facilities, warehousing and other overhead expenses. Cost of revenues would also include depreciation expense related to certain equipment used as part of the commercial asset.

***Operating Expenses***

*Research and Development Expenses*

Research and development expenses consist primarily of costs incurred in connection with the development of NeuroBo's product candidates. NeuroBo expenses research and development costs to operations as incurred. These expenses include:

- employee-related expenses, including salaries, related benefits and stock-based compensation, for employees engaged in research and development functions;
- expenses incurred in connection with the clinical development of NeuroBo's product candidates, including under agreements with third parties, such as consultants and Clinical Research Organizations, or CROs;
- the cost of manufacturing drug products for use in NeuroBo's preclinical studies and clinical trials, including under agreements with third parties, such as consultants and Clinical Manufacturing Organizations, or CMOs;
- facilities, depreciation and other expenses, which include direct or allocated expenses for rent and maintenance of facilities and insurance;
- costs related to compliance with regulatory requirements; and
- payments made under third-party licensing agreements.

NeuroBo recognizes external development costs based on an evaluation of the progress toward completion of specific tasks using information provided to NeuroBo by its service providers. This process involves reviewing open contracts and purchase orders, communicating with its personnel to identify services that have been performed on its behalf, and estimating the level of service performed and the associated cost incurred for the service when NeuroBo has not yet been invoiced or otherwise notified of actual costs. Nonrefundable advance payments for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses. Such amounts are recognized as an expense when the goods have been delivered or the services have been performed, or when it is no longer expected that the goods will be delivered, or the services rendered. Upfront payments, milestone payments and annual maintenance fees under license agreements are expensed in the period in which they are incurred.

NeuroBo's direct research and development expenses consist primarily of external costs, such as fees paid to outside consultants, CROs, CMOs and research laboratories in connection with its clinical

development, quality assurance and quality control processes, manufacturing, and clinical development activities. NeuroBo's direct research and development expenses also include fees incurred under third-party license agreements. NeuroBo uses its employee and infrastructure resources across multiple research and development projects. NeuroBo does not allocate employee costs and costs associated with its facilities, including depreciation or other indirect costs, to specific product candidates because these costs are deployed across multiple programs and, as such, are not separately classified. NeuroBo uses internal resources primarily to conduct manufacturing and clinical development activities. These employees work across multiple programs and, therefore, NeuroBo does not track its costs by product candidate.

The table below summarizes NeuroBo's research and development expenses incurred by product candidate for the periods indicated (in thousands):

| | Year Ended December 31, 2018 | Cumulative from July 25, 2017 (Date of Inception) to December 31, 2017 | Six Months Ended June 30, | |
|---|---|---|---|---|
| | | | 2019 | 2018 |
| NB-01 | $ 13,005 | $ — | $ 1,999 | $ 8.816 |
| Unallocated research and development expenses | 876 | — | 749 | 137 |
| Total research and development expenses | $ 13,881 | $ — | $ 2,748 | $ 8,953 |

Clinical development activities are central to NeuroBo's business model. NeuroBo does not believe that its historical costs are indicative of the future costs associated with these programs, nor do they represent the costs of other future programs NeuroBo may initiate. Product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage clinical trials. As a result, NeuroBo expects that its development expenses will increase substantially over the next several years as it expects to complete the clinical development of NB-01 in patients with painful diabetic neuropathy. In addition, NeuroBo expects development expenses to increase related to conducting clinical development for additional indications for NB-01 and for NB-02.

NeuroBo expects its research and development expense will increase for the foreseeable future as it seeks to advance development of its product candidates. The successful development and commercialization of NeuroBo's product candidates are highly uncertain. At this time, NeuroBo cannot reasonably estimate or know the nature, timing and costs of the efforts that will be necessary to complete the preclinical and clinical development of any of its product candidates. Additionally, because of the risks inherent in novel treatment discovery and development, NeuroBo cannot reasonably estimate or know:

- the timing and progress of preclinical and clinical development activities;
- the number and scope of clinical programs that NeuroBo decides to pursue;
- NeuroBo's ability to maintain its current development programs and to establish new ones;
- establishing an appropriate safety profile with IND-enabling studies;
- successful patient enrollment in, and the initiation and completion of, clinical trials;
- the successful completion of clinical trials with safety, tolerability and efficacy profiles that are satisfactory to the FDA or any comparable foreign regulatory authority;
- the receipt of regulatory approvals from applicable regulatory authorities;
- the timing, receipt and terms of any marketing approvals from applicable regulatory authorities;

- NeuroBo's ability to establish new licensing or collaboration arrangements;
- establishing agreements with third-party manufacturers for clinical supply for NeuroBo's clinical trials and commercial manufacturing, if any of NeuroBo's product candidates is approved;
- development and timely delivery of clinical-grade and commercial-grade drug formulations that can be used in NeuroBo's clinical trials and for commercial launch;
- obtaining, maintaining, defending and enforcing patent claims and other intellectual property rights;
- launching commercial sales of NeuroBo's product candidates, if approved, whether alone or in collaboration with others;
- maintaining a continued acceptable safety profile of the product candidates following approval; or
- the effect of competing technological and market developments.

A change in the outcome of any of these variables with respect to the development of NeuroBo's product candidates could significantly change the costs and timing associated with the development of that product candidate. NeuroBo may never succeed in obtaining regulatory approval for any of its product candidates.

*General and Administrative Expenses*

General and administrative expenses consist primarily of salaries and related costs, including stock-based compensation, for personnel in executive, finance and administrative functions. General and administrative expenses also include direct and allocated facility-related costs as well as professional fees for legal, patent, consulting, investor and public relations, accounting, and audit services.

NeuroBo anticipates that its general and administrative expenses will increase in the future as it increases its headcount to support its continued research activities and development of its product candidates. NeuroBo also anticipates that it will incur increased accounting, audit, legal, regulatory, compliance, and director and officer insurance costs as well as investor and public relations expenses associated with being a public company.

***Other Income (Expense), Net***

*Interest Income*

Interest income consists of bank interest earned on NeuroBo's cash.

*Interest Expense*

Interest expense consists of both the interest calculated at a rate of 5% per annum and debt discount accretion on the convertible notes issued in February 2018.

***Income Taxes***

Since its inception, NeuroBo has not recorded any income tax benefits for the NOLs it has incurred in each year or for its earned research and development tax credits, as NeuroBo believes, based upon the weight of available evidence, that it is more likely than not that all of its NOL carryforwards and tax credits will not be realized. As of December 31, 2018, NeuroBo had federal, state and foreign NOLs carryforwards of $6.5 million, $6.7 million, and $0.2 million, respectively, which may be available to offset future income tax liabilities and begin to expire in 2028. As of December 31, 2018, NeuroBo also had federal and state research and development tax credit carryforwards of

$0.2 million, which may be available to offset future tax liabilities and each begin to expire in 2038. NeuroBo has recorded a full valuation allowance against its net deferred tax assets at each balance sheet date.

On December 22, 2017, the Tax Cuts and Jobs Act, or TCJA, was signed into United States law. The Tax Act includes a number of changes to existing tax law, including, among other things, a permanent reduction in the federal corporate income tax rate from a top marginal tax rate of 35% to a flat rate of 21%, effective as of January 1, 2018, as well as limitation of the deduction for NOLs to 80% of annual taxable income and elimination of NOL carrybacks, in each case, for losses arising in taxable years beginning after December 31, 2017 (though any such NOLs may be carried forward indefinitely). The federal income tax rate change resulted in a reduction in the gross amount of NeuroBo's deferred tax assets recorded as of December 31, 2018, and a corresponding reduction in NeuroBo's valuation allowance. As a result, no income tax expense or benefit was recognized as of the enactment date of the Tax Act.

**Results of Operations**

***Comparison of the Six Months Ended June 30, 2019 and 2018***

The following table summarizes NeuroBo's results of operations for the six months ended June 30, 2019 and 2018 (in thousands):

| | Six Months Ended June 30, | | |
|---|---|---|---|
| | 2019 | 2018 | Change |
| Operating expenses: | | | |
| Research and development | $ 2,748 | $ 8,953 | $ (6,205) |
| General and administrative | 1,590 | 345 | 1,245 |
| Total operating expenses | 4,338 | 9,298 | (4,960) |
| Loss from operations | (4,338) | (9,298) | 4,960 |
| Other income (expense): | | | |
| Realized foreign exchange gain | 2 | 1 | 1 |
| Interest expense | (29) | (17) | (12) |
| Total other income (expense), net | (27) | (16) | (11) |
| Net loss | $ (4,365) | $ (9,314) | $ 4,949 |

*Research and Development Expenses*

| | Six Months Ended June 30, | | |
|---|---|---|---|
| | 2019 | 2018 | Change |
| Direct research and development expenses by product candidate: | | | |
| NB-01 | $ 1,999 | $ 8,816 | $ (6,817) |
| Unallocated research and development expenses: | | | |
| Personnel related (including stock-based compensation) | 700 | 122 | 578 |
| Other expense | 49 | 15 | 34 |
| Total research and development expenses | $ 2,748 | $ 8,953 | $ (6,205) |

Research and development expenses were $2.7 million for the six months ended June 30, 2019, compared to $9.0 million for the six months ended June 30, 2018. The decrease of $6.2 million was primarily due to a $8.8 million third party license fee expense in 2018 that did not recur in 2019 and

decreased spend due to a temporary hold placed on the Phase 3 study by management in January 2019 to reduce spend, this was partially offset by an increase of $0.6 million in personnel-related costs related to staffing up the research and development function, and a $2.0 million increase in costs related to the clinical development of NB-01.

Direct research and development expenses related to the development of NB-01 decreased by $6.8 million in the six months ended June 30, 2019, compared to the six months ended June 30, 2018. The decrease was primarily due to a decrease of $8.8 million in costs associated with the third party license fee expense that did not recur in 2019, partially offset by an increase of $2.0 million in costs related to the clinical development of NB-01. NeuroBo expects that its development expenses for NB-01 will increase substantially over the next several years as it expects to complete its planned Phase 3 trials in patients with painful diabetic neuropathy.

Unallocated research and development expenses were $0.7 million for the six months ended June 30, 2019, compared to $0.1 million for the six months ended June 30, 2018. The increase of $0.6 million was due to an increase of $0.6 million in personnel-related costs. The increase in personnel-related costs was primarily due to an increase of $0.4 million for the hiring of additional personnel in NeuroBo's research and development functions and a $0.2 million increase in costs for external consultants supporting the research and development of NeuroBo's product candidates.

*General and Administrative Expenses*

General and administrative expenses were $1.6 million for the six months ended June 30, 2019, compared to $0.3 million for the six months ended June 30, 2018. The increase of $1.3 million was primarily due to a $0.4 million increase in personnel-related costs, $0.8 million increase in professional fees and the remaining $0.1 million associated with general operating expense increase. The increase in personnel-related costs was primarily due to the hiring of additional operational personnel. Professional fees increased due to the use of consultants, audit and accounting support, as well as corporate legal costs and costs incurred in connection with maintaining and registering worldwide patents and costs associated with NeuroBo's ongoing business operations.

*Other Expense*

Other expense was less than $0.1 million during the six months ended June 30, 2019, compared to less than $0.1 million in other expense for the six months ended June 30, 2018.

***Comparison of the Year Ended December 31, 2018 and period from inception (July 25, 2017) to December 31, 2017***

The following table summarizes NeuroBo's results of operations for the year ended December 31, 2018 and period from inception (July 25, 2017) to December 31, 2017 (in thousands):

| | Year Ended December 31, 2018 | Cumulative from July 25, 2017 (Date of Inception) to December 31, 2017 | Change |
|---|---|---|---|
| Operating expenses: | | | |
| Research and development | $ 13,881 | $ — | $ 13,881 |
| General and administrative | 1,605 | 25 | 1,580 |
| Total operating expenses | 15,486 | 25 | 15,461 |
| Loss from operations | (15,486) | (25) | (15,461) |
| Other expense: | | | |
| Interest expense | (41) | — | (41) |
| Realized foreign exchange loss | (2) | — | (2) |
| Total other expense | (43) | — | (43) |
| Net loss | $ (15,529) | $ (25) | $ (15,504) |

*Research and Development Expenses*

| | Year Ended December 31, 2018 | Cumulative from July 25, 2017 (Date of Inception) to December 31, 2017 | Change |
|---|---|---|---|
| Direct research and development expenses by product candidate: | | | |
| NB-01 | $ 13,005 | $ — | $ 13,005 |
| Unallocated research and development expenses: | | | |
| Personnel related (including stock-based compensation) | 637 | — | 637 |
| Other expense | 239 | — | 239 |
| Total research and development expenses | $ 13,881 | $ — | $ 13,881 |

Research and development expenses were $13.9 million for the year ended December 31, 2018, compared to no research and development expenses for the period from inception (July 25, 2017) to December 31, 2017. The increase of $13.9 million was due to an $8.8 million increase in third party licensing expenses, $4.2 million increase in external costs related to NB-01, and an increase of $0.9 million in unallocated research and development expenses, mostly attributed to personnel-related costs.

Direct research and development expenses related to the development of NB-01 increased by $13.0 million in the year ended December 31, 2018, compared to the period from inception (July 25, 2017) to December 31, 2017. The increase was primarily due to an $8.8 million increase in third party licensing expenses and $4.2 million increase in clinical trial activities that commenced in 2018. NeuroBo expects that its research and development expenses for NB-01 will increase substantially over the next several years as it expects to pursue its planned Phase 3 trials in patients with painful diabetic neuropathy.

Unallocated research and development expenses were $0.9 million for the year ended December 31, 2018, compared to none for the period from inception (July 25, 2017) to December 31, 2017. The increase of $0.9 million was due to an increase of $0.6 million in personnel-related costs and an increase of $0.3 million in other costs. The increase in personnel-related costs was primarily due to an increase in salaries of $0.5 million as a result of hiring additional personnel in NeuroBo's research and development functions. The increase in other costs was primarily due to $0.3 million increase in costs for external consultants supporting NeuroBo's research and development programs.

*General and Administrative Expenses*

General and administrative expenses were $1.6 million for the year ended December 31, 2018, compared to less than $0.1 million for the period from inception (July 25, 2017) to December 31, 2017. The increase of $1.6 million was primarily due to an increase of $0.5 million in personnel-related costs, $0.3 million increase in legal costs incurred in connection with maintaining and registering worldwide patents and costs associated with NeuroBo's ongoing business operations, $0.5 million increase in operational consulting fees, a $0.1 million increase in professional fees due to higher audit and accounting support, and $0.2 million increase in travel and operations related expenses. The increase of $0.5 million in personnel-related costs was associated with the hiring of additional personnel in NeuroBo's general and administrative functions.

*Other Income (Expense), Net*

Other expense was less than $0.1 million during the year ended December 31, 2018, compared to less than $0.1 million for the period from inception (July 25, 2017) to December 31, 2017. The increase in other expense of less than $0.1 million was due to interest expense incurred from NeuroBo's convertible debt.

**Liquidity and Capital Resources**

Since its inception, NeuroBo has not generated any revenue from any sources, including from product sales, and has incurred significant operating losses and negative cash flows from its operations. NeuroBo has funded its operations to date primarily with proceeds from sales of preferred stock and proceeds from the issuance of convertible debt. Through June 30, 2019, NeuroBo has received net proceeds of $41.0 million from sales of its preferred stock and common stock and $0.5 million from the sales of its convertible notes. ln February 2018, NeuroBo sold to investors an aggregate of $0.5 million of convertible promissory notes. The promissory notes accrue interest at a rate of 5% per annum and are due and payable on December 31, 2022. On October 23, 2019, the holders of the promissory notes entered into agreements with NeuroBo providing that the promissory notes will be converted into NeuroBo common stock, effective immediately prior to the Closing of the merger, at a conversion price equal to $0.40 per share (which reflects adjustment for the NeuroBo Stock Split).

ln April 2018, NeuroBo issued an aggregate of 4,200,000 shares of its Series A preferred stock at a purchase price of $4.00 per share, for aggregate consideration of approximately $16.8 million. Immediately prior to the Effective Time, each share of NeuroBo Series A preferred stock then outstanding will be converted into one share of NeuroBo common stock in accordance with the applicable provisions of NeuroBo's fourth amended and restated certificate of incorporation. At the Effective Time, each share of NeuroBo common stock will be converted solely into the right to receive a specified number of shares of Gemphire common stock in accordance with the Exchange Ratio.

ln August 2019, NeuroBo issued an aggregate of 3,030,000 shares of its Series B preferred stock at a purchase price of $8.00 per share, for aggregate consideration of approximately $24.2 million. Immediately prior to the Effective Time, each share of NeuroBo Series B preferred stock then outstanding will be converted into one share of NeuroBo common stock in accordance with the

applicable provisions of NeuroBo's fourth amended and restated certificate of incorporation. At the Effective Time, each share of NeuroBo common stock will be converted solely into the right to receive a specified number of shares of Gemphire common stock in accordance with the Exchange Ratio.

NeuroBo believes that its existing cash and cash equivalents will be sufficient to fund its operations into July 2020. NeuroBo plans to continue to fund its losses from operations and capital funding needs through a combination of equity offerings, debt financings, or other sources, potentially including collaborations, licenses and other similar arrangements. There can be no assurance that NeuroBo will be able to obtain any sources of financing on acceptable terms, or at all. To the extent that NeuroBo can raise additional funds by issuing equity securities, NeuroBo's stockholders may experience significant dilution.

NeuroBo will need to continue to raise a substantial amount of funds until it is able to generate revenues to fund its development activities. As a result, NeuroBo believes that there is substantial doubt about its ability to continue as a going concern for one year after the issuance of the consolidated financial statements.

***Cash Flows***

The following table summarizes NeuroBo's sources and uses of cash for each of the periods presented (in thousands):

| | Year Ended December 31, 2018 | Cumulative from July 25, 2017 (Date of Inception) to December 31, 2017 | Six Months Ended June 30, 2019 | Six Months Ended June 30, 2018 |
|---|---|---|---|---|
| Net cash used in operating activities | $ (14,451) | $ — | $ (2,416) | $ (7,469) |
| Net cash used in investing activities | (3) | — | (25) | (3) |
| Net cash provided by financing activities | 17,246 | 50 | 24,175 | 17,246 |
| Net increase in cash and cash equivalents | $ 2,792 | $ 50 | $ 21,734 | $ 9,774 |

*Operating Activities*

During the six months ended June 30, 2019, operating activities used $2.4 million of cash, primarily resulting from NeuroBo's net loss of $4.4 million. Net cash provided by changes in NeuroBo's operating assets and liabilities for the six months ended June 30, 2019 consisted of a $0.9 million decrease in prepaid expenses and other current assets, $0.9 million increase in accrued expenses and payables, and a $0.1 million increase in non-cash stock compensation expense. The decrease in prepaid expenses and other current assets was primarily due to the expensing of prepaid amounts paid to CROs for clinical trial activities. The increase in accrued expenses was primarily due to increases in development costs for clinical trial activities and increases in bonus accruals.

During the six months ended June 30, 2018, operating activities used $7.5 million of cash, primarily resulting from NeuroBo's net loss of $9.3 million. Net cash used in changes in NeuroBo's operating assets and liabilities for the six months ended June 30, 2018 consisted of an increase of $1.8 million of in-process research and development, and less than $0.1 million increase in accounts payable, partially offset by less than $0.1 million in accrued expenses. The increase in accounts payable was primarily due to the timing of vendor invoicing and payments for professional fees. The decrease in accrued expenses was due to the timing of vendor payments for legal fees.

During the year ended December 31, 2018, operating activities used $14.5 million of cash, primarily resulting from NeuroBo's net loss of $15.5 million. Net cash provided by changes in NeuroBo's operating assets and liabilities for the year ended December 31, 2018 consisted of

approximately $1.0 million increase in prepaid expenses and other current assets, partially offset by a $1.8 million increase in in-process research and development and $0.2 million increase in accounts payable and accrued expenses. The increase in increased in prepaid expenses was primarily due to clinical research organization deposits for clinical trial activities. The increase in accounts payable was primarily attributed to the timing of vendor invoicing and payments.

During the period from inception (July 25, 2017) to December 31, 2017, no cash was used in operating activities for NeuroBo's net loss of less than $0.1 million. NeuroBo's business operations commenced during the second half of calendar year 2017 and, as such, no payments were made in 2017. Net cash provided by changes in NeuroBo's operating assets and liabilities for the period from inception (July 25, 2017) to December 31, 2017 consisted of less than $0.1 million increase in accrued expenses. The increase in accrued expenses was primarily due to legal fees for initiating NeuroBo's business operations.

*Investing Activities*

During the six months ended June 30, 2019, net cash used in investing activities was less than $0.1 million, consisting of purchases of property and equipment. During the six months ended June 30, 2018, net cash used in investing activities was less than $0.1 million, consisting of purchases of property and equipment.

During the year ended December 31, 2018, net cash used in investing activities was less than $0.1 million, consisting of purchases of property and equipment.

During the period from inception (July 25, 2017) to December 31, 2017, NeuroBo had no cash flows from investing activities.

*Financing Activities*

During the six months ended June 30, 2019, net cash provided by financing activities was $24.2 million, consisting entirely of net proceeds of $24.2 million from NeuroBo's sale of Series B preferred stock in May and June 2019, partially offset by less than $0.1 million of accrued interest on convertible notes entered into in February 2018.

During the six months ended June 30, 2018, net cash provided by financing activities was $17.2 million, consisting primarily of net proceeds of $16.7 million from NeuroBo's sale of Series A preferred stock in April 2018, and net proceeds of $0.5 million from NeuroBo's sale of convertible notes entered into in February 2018.

During the year ended December 31, 2018, net cash provided by financing activities was $17.2 million, consisting primarily of net proceeds of $16.7 million from NeuroBo's sale of Series A preferred stock in April 2018, net proceeds of $0.5 million from NeuroBo's sale of convertible notes entered into in February 2018.

During the period from inception (July 25, 2017) to December 31, 2017, net cash provided by financing activities consisted of less than $0.1 million in proceeds of NeuroBo's sale of common stock.

***Funding Requirements***

NeuroBo expects its expenses to increase substantially in connection with its ongoing activities, particularly as it advances the preclinical activities and clinical trials of its product candidates. In addition, upon the Closing of the merger, NeuroBo expects to incur additional costs associated with

operating as a public company. The timing and amount of NeuroBo's operating expenditures will depend largely on:

- the scope, number, initiation, progress, timing, costs, design, duration, any potential delays, and results of clinical trials and nonclinical studies for NeuroBo's current or future product candidates, particularly the planned Phase 3 trial of NB-01 for the treatment of painful diabetic neuropathy;
- the clinical development plans NeuroBo establishes for its product candidates;
- the number and characteristics of product candidates and programs that NeuroBo develops or may in-license;
- the outcome, timing and cost of regulatory reviews, approvals or other actions to meet regulatory requirements established by the FDA and comparable foreign regulatory authorities, including the potential for the FDA or comparable foreign regulatory authorities to require that NeuroBo perform more studies for its product candidates than those that NeuroBo currently expects;
- NeuroBo's ability to obtain marketing approval for its product candidates;
- the cost of filing, prosecuting, defending and enforcing NeuroBo's patent claims and other intellectual property rights covering its product candidates, including any such patent claims and intellectual property rights that NeuroBo has licensed pursuant to the terms of its license agreement;
- NeuroBo's ability to maintain, expand and defend the scope of its intellectual property portfolio, including the cost of defending intellectual property disputes, including patent infringement actions brought by third parties against NeuroBo or its product candidates;
- the cost and timing of completion of commercial-scale outsourced manufacturing activities with respect to NeuroBo's product candidates;
- NeuroBo's ability to establish and maintain licensing, collaboration or similar arrangements on favorable terms and whether and to what extent NeuroBo retains development or commercialization responsibilities under any new licensing, collaboration or similar arrangement;
- the cost of establishing sales, marketing and distribution capabilities for any product candidates for which NeuroBo may receive regulatory approval in regions where NeuroBo chooses to commercialize its products on its own;
- the success of any other business, product or technology that NeuroBo acquires or in which NeuroBo invests;
- the costs of acquiring, licensing or investing in businesses, product candidates and technologies;
- NeuroBo's need and ability to hire additional management and scientific and medical personnel;
- the costs to operate as a public company in the United States, including the need to implement additional financial and reporting systems and other internal systems and infrastructure for NeuroBo's business;
- market acceptance of NeuroBo's product candidates, to the extent any are approved for commercial sale; and
- the effect of competing technological and market developments.

NeuroBo expects that its existing cash and cash equivalents will be sufficient to fund its operating expenses, capital expenditure requirements and debt service payments through July 2020. NeuroBo has

based this estimate on assumptions that may prove to be wrong, and NeuroBo could exhaust its available capital resources sooner than it expects.

Until such time, if ever, as NeuroBo can generate substantial product revenue, NeuroBo expects to finance its cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances, and marketing, distribution or licensing arrangements with third parties. To the extent that NeuroBo raises additional capital through the sale of equity or convertible debt securities, the ownership interest of NeuroBo may be materially diluted, and the terms of such securities could include liquidation or other preferences that adversely affect the rights of the NeuroBo Stockholders and the rights of the stockholders of the combined organization following the Closing of the merger. Debt financing and preferred equity financing, if available, may involve agreements that include restrictive covenants that limit NeuroBo's ability to take specified actions, such as incurring additional debt, making capital expenditures or declaring dividends. If NeuroBo raises funds through collaborations, strategic alliances or marketing, distribution or licensing arrangements with third parties, NeuroBo may have to relinquish valuable rights to its technologies, future revenue streams, research programs or product candidates or grant licenses on terms that may not be favorable to NeuroBo. If NeuroBo is unable to raise additional funds through equity or debt financings or other arrangements when needed, NeuroBo may be required to delay, scale back or discontinue the development and commercialization of one or more of its product candidates or delay its pursuit of potential in-licenses or acquisitions.

**Contractual Obligations and Commitments**

The following table summarizes NeuroBo's material contractual obligations as of June 30, 2019 and the effects that such obligations are expected to have on its liquidity and cash flows in future periods (in thousands):

| | Payments Due by Period | | | | |
|---|---|---|---|---|---|
| | Total | Less than 1 Year | 1 to 3 Years | 4 to 5 Years | More than 5 Years |
| Operating lease commitments(1) | $ 206 | $ 39 | $ 111 | $ 56 | $ — |
| Manufacturing commitments(2) | 726 | 66 | 660 | — | — |
| Convertible promissory notes(3) | 623 | — | — | 623 | — |
| Total | $ 1,555 | $ 105 | $ 771 | $ 679 | $ — |

(1) Amounts in the table reflect payments due for NeuroBo's lease of office space in Boston, Massachusetts, under an operating lease agreement that expires on August 31, 2019. In addition, the table reflects office and lab space payments due for NeuroBo's subsidiary in Korea, under an operating lease agreement that expires in July 2024.

(2) Amounts in the table reflect the non-cancelable purchase commitments under an agreement with two of NeuroBo's external CMOs, which NeuroBo has engaged to cultivate and manufacture active botanical ingredients.

(3) Amounts in the table reflect the principal and interest due upon maturity of the $500,000 convertible notes issued on February 1, 2018.

In addition to the contracts with payment commitments that NeuroBo has reflected in the table above, NeuroBo has entered into other contracts in the normal course of business with certain CROs, CMOs and other third parties for preclinical research studies and testing, clinical trials and manufacturing services. These contracts do not contain any minimum purchase commitments and are cancelable by NeuroBo upon prior notice and, as a result, are not included in the table of contractual obligations and commitments above. Payments due upon cancellation consist only of payments for

services provided and expenses incurred, including non-cancelable obligations of NeuroBo's service providers, up to the date of cancellation.

In addition, NeuroBo has entered into an agreement with an investment bank for advisory services related to a transaction that, if successfully consummated, would require NeuroBo to pay to the investment bank a success fee of $600,000. The investment bank may be eligible for additional compensation based on the characteristics of the transaction.

In addition, under various licensing and related agreements to which NeuroBo is a party, NeuroBo may be required to make milestone payments and to pay royalties and other amounts to third parties. NeuroBo has not included any of these contingent payment obligations in the table above as the amount, timing and likelihood of such payments are not known. These contingent payment obligations are described below.

Under NeuroBo's license agreement with Dong-A ST, NeuroBo is obligated to make milestone payments in the aggregate of up to $178.0 million, contingent upon the achievement by NeuroBo of certain late-stage regulatory and sales milestones with respect to NB-01. NeuroBo is also obligated under the license agreement to pay Dong-A ST tiered royalties based on annual net sales of licensed products that NeuroBo commercializes under the license agreement.

**Critical Accounting Policies and Significant Judgments and Estimates**

NeuroBo's consolidated financial statements are prepared in accordance with U.S. GAAP. The preparation of NeuroBo's consolidated financial statements and related disclosures requires NeuroBo to make estimates and judgments that affect the reported amounts of assets, liabilities, costs, and expenses, and related disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of expenses during the reporting period. On an on-going basis, NeuroBo's management evaluates its estimates, including those related to accounting for clinical trials, income taxes including the valuation allowance for deferred tax assets, accrued expenses, contingencies and share-based compensation. NeuroBo bases its estimates on historical experience, known trends and events, and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgements about the carrying values of assets and liabilities. Actual results could differ from those estimates. Changes in estimates are reflected in reported results in the period in which they become known.

While NeuroBo's significant accounting policies are described in more detail in Note 2 to its consolidated financial statements included elsewhere in this proxy statement/prospectus/information statement, NeuroBo believes that the following accounting policies are those most critical to the judgments and estimates used in the preparation of its consolidated financial statements.

***Accrued and Prepaid Research and Development Expenses***

As part of the process of preparing its consolidated financial statements, NeuroBo is required to estimate its accrued research and development expenses. This process involves reviewing open contracts and purchase orders, communicating with its applicable personnel to identify services that have been performed on NeuroBo's behalf and estimating the level of service performed and the associated cost incurred for the service when NeuroBo has not yet been invoiced or otherwise notified of actual costs. The majority of NeuroBo's service providers invoice NeuroBo in arrears for services performed, on a pre-determined schedule or when contractual milestones are met; however, some service providers require advance payments. NeuroBo makes estimates of its accrued and prepaid expenses as of each balance sheet date in the consolidated financial statements based on facts and circumstances known to them at that time. NeuroBo periodically confirms the accuracy of these estimates with the service

providers and makes adjustments, if necessary. Examples of estimated accrued research and development expenses include fees paid to:

- vendors in connection with preclinical development activities;
- CROs and investigative sites in connection with preclinical studies and clinical trials; and
- CMOs in connection with the production of preclinical and clinical trial materials.

NeuroBo bases the expense recorded related to external research and development on its estimates of the services received and efforts expended pursuant to quotes and contracts with multiple CMOs and CROs that supply, conduct and manage preclinical studies and clinical trials on its behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to NeuroBo's vendors will exceed the level of services provided and result in a prepayment of the expense. Payments under some of these contracts depend on factors such as the successful enrollment of patients and the completion of clinical trial milestones. In accruing service fees, NeuroBo estimates the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from the estimate, NeuroBo adjusts the accrual or the amount of prepaid expenses accordingly. Although NeuroBo does not expect its estimates to be materially different from amounts actually incurred, NeuroBo's understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in reporting amounts that are too high or too low in any particular period.

***Stock-Based Compensation***

NeuroBo measures all stock-based awards granted to employees and directors based on the fair value on the date of the grant and recognizes compensation expense for those awards, net of estimated forfeitures, over the requisite service period, which is generally the vesting period of the respective award. NeuroBo issues stock-based awards with both service-based and performance-based vesting conditions and records the expense for these awards.

For stock-based awards granted to non-employee consultants, compensation expense is recognized over the period during which services are rendered by such non-employee consultants until completed. At the end of each financial reporting period prior to completion of the service, the fair value of these awards is remeasured using the then-current fair value of NeuroBo common stock and updated assumption inputs in the Black-Scholes option-pricing model.

The fair value of each stock option grant is estimated on the date of grant using the Black-Scholes option-pricing model, which uses as inputs the fair value of NeuroBo common stock and assumptions NeuroBo makes for the volatility of NeuroBo common stock, the expected term of its stock options, the risk-free interest rate for a period that approximates the expected term of its stock options and its expected dividend yield.

*Determination of the Fair Value of Common Stock*

As there has been no public market for the NeuroBo common stock to date, the estimated fair value of the NeuroBo common stock has been determined by the NeuroBo Board as of the date of each option grant, with input from management, considering its most recently available third-party valuations of the NeuroBo common stock and the NeuroBo Board's assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent third-party valuation through the date of the grant. These third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. The valuations of NeuroBo common stock were prepared using a hybrid

method, which used market approaches to estimate the enterprise value of NeuroBo. The hybrid method is a probability-weighted expected return method ("PWERM"), where the equity value in one or more of the scenarios is calculated using an option pricing method, or ("OPM"). The PWERM is a scenario-based methodology that estimates the fair value of common stock based upon an analysis of future values for NeuroBo, assuming various outcomes. The common stock value is based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available as well as the rights of each class of stock. The future value of the common stock under each outcome is discounted back to the valuation date at an appropriate risk-adjusted discount rate and probability weighted to arrive at an indication of value for the common stock. A discount for lack of marketability of the common stock is then applied to arrive at an indication of value for the common stock. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceeded the value of the preferred stock liquidation preferences at the time of the liquidity event, such as a strategic sale or a merger. These third-party valuations were performed at various dates, which resulted in valuations of the NeuroBo common stock of $0.72 per share as of March 31, 2018, $0.72 per share as of September 30, 2018, $0.72 per share as of December 31, 2018 and $3.81 per share as of June 30, 2019. In addition to considering the results of these third-party valuations, the NeuroBo Board considered various objective and subjective factors to determine the fair value of the NeuroBo common stock as of each grant date, including:

- the prices at which NeuroBo sold NeuroBo preferred stock and the superior rights and preferences of the NeuroBo preferred stock relative to the NeuroBo common stock at the time of each grant;
- the progress of NeuroBo's research and development programs, including the status of clinical studies and planned additional clinical trials for its product candidates;
- NeuroBo's stage of development and commercialization and its business strategy;
- external market conditions affecting the biopharmaceutical industry, and trends within the biopharmaceutical industry;
- NeuroBo's financial position, including cash on hand, and its historical and forecasted performance and operating results;
- the lack of an active public market for the NeuroBo common stock and NeuroBo preferred stock;
- the likelihood of achieving a liquidity event, such as an Initial Public Offering, or IPO, merger, consolidation or a sale of NeuroBo in light of prevailing market conditions; and
- the analysis of IPOs and the market performance of similar companies in the biopharmaceutical industry.

The assumptions underlying these valuations represented the management of NeuroBo's best estimates, which involved inherent uncertainties and the application of management's judgment. As a result, if NeuroBo had used significantly different assumptions or estimates, the fair value of the NeuroBo common stock and NeuroBo's stock-based compensation expense could be materially different.

Once a public trading market for the combined organization's common stock has been established in connection with the closing of the merger, it will no longer be necessary for the NeuroBo Board to estimate the fair value of the NeuroBo common stock in connection with NeuroBo's accounting for granted stock options and other such awards NeuroBo may grant, as the fair value of the combined

organization's common stock will be determined based on the quoted market price of such common stock.

*Options Granted*

The following table sets forth by grant date the number of shares subject to options granted between January 1, 2018 and June 30, 2019, the per share exercise price of the options, the fair value of NeuroBo common stock per share on each grant date, and the per share estimated fair value of the options:

| Grant Date | Number of Shares Subject to Options Granted | Per Share Exercise Price of Options | Fair Value of Common Stock per Share on Grant Date | Per Share Estimated Fair Value of Options |
|---|---|---|---|---|
| January 28, 2019 | 800,000 | $ 0.72 | $ 0.72 | $ 0.57 |
| January 31, 2019 | 40,000 | $ 0.72 | $ 0.72 | $ 0.57 |

**Emerging Growth Company Status**

The Jumpstart Our Business Startups ("JOBS") Act permits Emerging Growth Companies, or EGCs to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies until those standards would otherwise apply to private companies. Because Gemphire irrevocably elected to "opt out" of this provision, following the merger, NeuroBo will comply with new or revised accounting standards when they are required to be adopted by public companies that are not emerging growth companies.

**Off-Balance Sheet Arrangements**

NeuroBo did not have off balance sheet arrangements during the periods presented, and NeuroBo does not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the Securities Exchange Commission, or SEC.

**Recently Issued Accounting Pronouncements**

A description of recently issued accounting pronouncements that may potentially impact NeuroBo's financial position and results of operations is disclosed in Note 2 to NeuroBo's consolidated financial statements included elsewhere in this proxy statement/prospectus/information statement.

## MANAGEMENT FOLLOWING THE MERGER

### Executive Officers and Directors

***Resignation of Current Executive Officers of Gemphire***

The employment of the current executive officers of Gemphire will be terminated upon completion of the merger.

***Executive Officers and Directors of the Combined Organization Following the Merger***

Following the merger, the Gemphire Board will consist of ten directors with one director designated by Gemphire and nine directors designated by NeuroBo. Pursuant to the Merger Agreement, all of the current members of the Gemphire Board, other than Steven Gullans, Ph.D., will resign from their positions as members of the Gemphire Board upon completion of the merger. Dr. Gullans, the designee selected by Gemphire to remain on the board of directors of the combined company, will then elect nine designees selected by NeuroBo, each to serve as members of the board of directors of the combined company. Following the merger, the management team of Gemphire is expected to be composed of the current management team of NeuroBo.

The following table lists, as of September 30, 2019, the names, ages and positions of the individuals who are expected to serve as executive officers and directors of the combined company following completion of the merger.

| Name | Age | Position |
|---|---|---|
| ***Executive Officers*** | | |
| John L. Brooks, III | 68 | President, Chief Executive Officer, Interim Chief Financial Officer and Class III Director |
| Mark Versavel, M.D., Ph.D., M.B.A. | 61 | Chief Medical Officer |
| Nandan Padukone, Ph.D., M.B.A.* | 58 | Senior Vice President, Business Development |
| Nicola Shannon | 61 | Vice President, Clinical Operations |
| | | |
| ***Non-Employee Directors*** | | |
| Na Yeon (Irene) Kim | 44 | Class II Director |
| Jeong Gyun Oh | 46 | Class I Director |
| Roy Freeman, M.D. | 68 | Class I Director |
| Steven Gullans, Ph.D. | 66 | Class I Director |
| Alice C. Brennan | 66 | Class III Director |
| Steven Prelack | 62 | Class III Director |
| Michael C. Ferrara | 77 | Class II Director |
| Michael R. Jacobson | 65 | Class II Director |
| Tae Heum (Ted) Jeong | 49 | Class III Director |

* Dr. Padukone has notified NeuroBo that he will depart his position with NeuroBo effective December 31, 2019 to pursue other professional interests.

***Executive Officers***

*Mr. John L. Brooks, III* has served as the President and Chief Executive Officer of NeuroBo Pharmaceuticals, Inc. since February 2018 and NeuroBo's Interim Chief Financial Officer since July 2019. Mr. Brooks has also been the Managing Director of Healthcare Capital LLC, a private company which advises early-stage life sciences companies, since February 2010. From May 2011 until September 2015, Mr. Brooks was the President and Chief Executive Officer of the Joslin Diabetes Center, a diabetes research, clinical care, and education organization based in Boston, Massachusetts. Mr. Brooks

serves on the board of a number of privately-held for-profit and not-for-profit organizations. Mr. Brooks is a well-known life sciences executive, and has co-founded seven life sciences companies. From 1987 to 2011, he was a co-founder of Prism Venture Partners, a venture capital firm with $1.25 billion in assets under management. Prior to his tenure at Prism Ventures Partners, Mr. Brooks was a senior medical device executive at Pfizer and a senior manager at Arthur Andersen & Co. in Boston, Massachusetts where he focused on early stage companies. Mr. Brooks holds an M.S. in Business Administration and a B.B.A. cum laude from the University of Massachusetts at Amherst. The NeuroBo Board believes Mr. Brooks' extensive experience in advising and investing in early-stage life sciences companies qualifies him to serve as a member of the NeuroBo Board and as a member of the board of directors of the combined company following the merger.

*Dr. Mark Versavel* has served as NeuroBo's Chief Medical Officer since February 2018. Dr. Versavel has also been the founder and owner of vZenium LLC, providing consulting services to life sciences companies engaged in central nervous system clinical development, since March 2014 and, since March 2019, has served as the Chief Medical Officer of Cavion, Inc., a privately-held, clinical stage biotechnology company developing therapeutics for neurological diseases. From May 2014 until December 2018, Dr. Versavel also provided advisory services to life sciences companies through the privately-held staffing agency, Atrium Staffing. Dr. Versavel also served as the Chief Medical Officer of Alzheon, Inc., a privately-held, clinical-stage biopharmaceutical company developing medicines for patients with Alzheimer's disease, from September 2013 until September 2015. From March 2014 until November 2015, Dr. Versavel was also a principal of Akta Pharmaceutical Development, an international, privately-held company engaged in providing consulting services for biopharmaceutical companies. Dr. Versavel has over 25 years of clinical development experience in neuropathic pain and multiple neurology and psychiatry indications across the areas of clinical pharmacology, early and late phase clinical trials, and in the support of marketed products in the public companies Bayer AG, Schering AG, Parke Davis, Pfizer and Sunovion. Dr. Versavel received his M.D. from the University of Antwerp, his Ph.D. in clinical pharmacology from the Humboldt University of Berlin and his M.B.A. from the University of Michigan.

*Dr. Nandan Padukone* has served as NeuroBo's Senior Vice President of Business Development since August 2018. Dr. Padukone has also been the Manager of Biopreneur LLC, a privately-held company providing consulting services to life sciences companies, since May 2019 and the Chief Executive Officer of ImmunoMolecular Therapeutics (also known as IM Therapeutics), a privately-held, clinical-stage biopharmaceutical company developing personalized immuno-therapeutics for autoimmune diseases, since June 2019. Since May 2018, Dr. Padukone has served as an Entrepreneur-in-Residence for JDRF T1D Fund, a non-profit venture fund affiliated with JDRF International seeking to advance a portfolio of novel technologies in immunology, regenerative medicine and devices for diabetes management through company creation and partnerships. He has also served as an Advisory Board Member of C2I Accelerator, a non-profit incubator for biotechnology companies since May 2018. From January 2012 until April 2018, Dr. Padukone served as the Senior Vice President of Innovation at the Joslin Diabetes Center, an affiliate of Harvard Medical School, and since May 2018, has served as a Strategic Advisor to the Joslin Diabetes Center. From January 2006 until September 2017, Dr. Padukone served as president and member of the board of directors of Nuvera Biosciences, a privately-held life sciences company seeking to develop cancer diagnostics and personalized medicine for breast cancer. Dr. Padukone is an experienced executive in scientific and business management in early-stage technology and venture development and across preclinical and clinical programs in metabolism, cancer, cardiovascular, autoimmune, and cognitive disease. Dr. Padukone holds a Ph.D. in biochemical engineering from North Carolina State University, an M.B.A. from the University of Denver, an M.S. in chemical engineering from SUNY-The State University of New York at Buffalo and a Bachelor of Technology in chemical engineering from the Indian Institute of Technology of Mumbai. Dr. Padukone has notified NeuroBo that he will depart his position with NeuroBo effective December 31, 2019 to pursue other professional interests.

*Ms. Nicola Shannon* has served as NeuroBo's Vice President of Clinical Operations since October 2018. From May 2018 until September 2018, Ms. Shannon served as the Vice President of Clinical Operations of Kaleido Biosciences, Inc., a publicly-traded, clinical-stage health care company focused on leveraging the microbiome organ to treat disease and improve human health, and from June 2016 until April 2018, Ms. Shannon served as the Executive Director of Clinical Operations for Tetraphase Pharmaceuticals, a publicly-traded, biopharmaceutical company seeking to use chemistry technology to create, develop and commercialize novel tetracyclines for serious and life-threatening conditions. Ms. Shannon was also the Senior Director of Clinical Operations for Cubist Pharmaceuticals, a publicly-traded, biopharmaceutical company (subsequently acquired by Merck & Co.) focusing on the research, development and commercialization of pharmaceutical products-particularly those designed to treat drug resistant pathogens, from October 2014 until March 2016. In addition, Ms. Shannon was a Director of Clinical Development for Astra Zeneca Pharmaceuticals, Inc., a publicly-traded, global pharmaceutical and biopharmaceutical company and Senior Director of Clinical Operations at Vertex Pharmaceuticals, a publicly-traded, global biotechnology company. Ms. Shannon brings more than 25 years of experience in clinical operations and clinical development, Phase 1 - 4 trials, clinical strategy, quality, and process improvement to NeuroBo. Ms. Shannon is a Registered Nurse and holds a nursing degree from Fanshawe College, a B.A. in health sciences administration from Ottawa University and studied business administration at Capella University.

***Non-Employee Directors***

*Dr. Roy Freeman* has served as the Chair of NeuroBo's Scientific Advisory Board since April 2018 and has served as a member of the NeuroBo Board since July 2017. Since January 2005, Dr. Freeman has been a Professor of Neurology at the Harvard Medical School, and Staff Neurologist and Director of the Center for Autonomic and Peripheral Nerve Disorders in the Department of Neurology at Beth Israel Deaconess Medical Center in Boston, Massachusetts. Dr. Freeman has served as the principal investigator on National Institutes of Health-funded studies on the neurological complications of diabetes, the neurobiology of stress and biomarker development in alpha-synucleinopathies, and since 2014, has served on the Executive Committee and the Steering Committee of the Analgesic, Anesthetic, and Addiction Clinical Trial Translations, Innovations, Opportunities, and Networks, or ACCTTION, a public-private partnership with the FDA. Dr. Freeman's research and clinical interests are the physiology and pathophysiology of the small nerve fibers and the autonomic nervous system, and his research encompasses the neurological complications of diabetes; neuropathic pain; the autonomic complications of Parkinson's disease and multiple system atrophy; biomarkers in neurodegenerative diseases; and the diagnosis and treatment of autonomic and peripheral nervous system disorders. He has a special interest in clinical trial design in neuropathic pain in diabetic peripheral neuropathy and other peripheral nerve disorders. Dr. Freeman has been a principal investigator on many neuropathic pain clinical trials and is author of more than 250 original reports, chapters and reviews. He is also a former chairman of the World Federation of Neurology research group on the autonomic nervous system, former president of the American Autonomic Society and former chairman of the Autonomic Section of the American Academy of Neurology. Dr. Freeman holds an MBChB from the University of Cape Town. Dr. Freeman's extensive academic and research in the neurosciences qualify him to be a member of the NeuroBo Board, member of the board of directors of the combined company following the merger, and as Chair of the Scientific Advisory Board.

*Ms. Na Yeon ("Irene") Kim* has served as a member of the NeuroBo Board since April 2018. Ms. Kim also currently serves as the Chief Executive Officer of E&Investment, Inc., a South Korean venture capital firm specializing in investments in life sciences companies, a position she has held since March 2018. From October 2015 until March 2018, Ms. Kim was a Representative Director for The SEED Investment Co., Ltd. (formerly known as OST Investment Co., Ltd.), a South Korean investment and fund manager specializing in investments in life sciences companies, and from January 2015 until December 2017, Ms. Kim served as member of the board of directors of Macrogen, Inc., a South

Korean, publicly-traded biotechnology company specializing in precision medicine and biotechnology. Ms. Kim also served as an officer of AJUIB Investment, Inc., a venture capital firm headquartered in South Korea specializing in investments in life-science companies from August 2014 until September 2015. Ms. Kim focuses on investment opportunities in a number of industries, particularly in the field of BioPharma, and has more than 15 years of accumulated experience of investment in private equity/venture capital markets. As an investor representative, Ms. Kim has successfully managed more than $400 million in private equity and venture capital funds. Ms. Kim holds an M.S. and B.S. in biomolecular engineering, as well as an M.B.A. from Yonsei University in Korea. Ms. Kim's specialized knowledge in building values in life sciences companies and her extensive investment management experience qualify her to serve as a member of the NeuroBo Board and as a member of the board of directors of the combined company following the merger.

*Mr. Jeong Gyun Oh* has served as a member of the NeuroBo Board since March 2019. From January 2017 until February 2019, Mr. Oh served as Chief Financial Officer of JK BioPharma Solutions, Inc., a privately-held, drug development company focused on early stage developmental assets, and has served as the President and Chief Executive Officer of JK BioPharma Solutions, Inc. since March 2019. From August 2001 until December 2016, Mr. Oh held multiple financial positions ultimately culminating in his service as Vice President of Finance with CDNetworks Co., Ltd., a global content delivery network service company. Mr. Oh holds a B.A. in business administration from Seoul National University. Mr. Oh's experience as a corporate finance executive with extensive expertise in financial operations, including financial/managerial accounting, business planning and budgeting qualify him to serve as a member of the NeuroBo Board and as a member of the board of directors of the combined company following the merger.

*Dr. Steve Gullans's* experience and qualifications are set forth in the section "*Gemphire Directors, Officers and Corporate Governance—Business Experience and Background of Directors and Executive Officers of Gemphire*."

*Ms. Alice C. Brennan* has served as an officer and corporate secretary at global technology companies for more than 20 years and has extensive experience in corporate governance, securities laws, compliance and risk oversight, among others. Since 2014, Ms. Brennan has served as an advisory specialist at AlphaSights, a firm where she helps clients understand legal and compliance risk oversight, audit disclosure and electronic records management. Since June 2017, Ms. Brennan has served as a board member of RENN Fund, Inc., a publicly traded equity mutual fund launched by RENN Capital Group, Inc. From 2000 to 2014, Ms. Brennan served as Associate General Counsel and Chief Compliance Officer for Verizon Wireless. Prior to that, she was Vice President, Secretary and Chief Compliance Officer for Bristol-Myers Squibb Company. Ms. Brennan received a Bachelor of Arts from Skidmore College, a Master of Arts from Columbia University and a Juris Doctor from Hofstra Law School. We believe that Ms. Brennan's qualifications to serve as a director of the Company include her extensive experience at global technology companies and the various legal, corporate governance and management positions she has held during the course of her career.

*Mr. Steven Prelack* has served as the Chief Operating Officer of VetCor, Inc., a private equity backed veterinary practice, since May 2010. Since January 2017, he has also served as a member of the Board of Directors of Aerpio Pharmaceuticals, Inc., a biopharmaceutical company focused on treatments for ocular diseases. Mr. Prelack has been a board member of Galectin Therapeutics Inc., a biotechnology company focused on chronic liver and skin diseases, since May 2003, where he is also the Chairman of the Audit Committee. Previously, he served as director of Pieris Pharmaceuticals, Inc., a biotechnology company focused on developing Anticalin-based drugs, from January 2015 to June 2019. Mr. Prelack was also director of BioVex Group, Inc., a biotechnology company focused on targeted treatments for cancer, from June 2006 to September 2010. Mr. Prelack holds a B.A.A. in Business Administration from the University of Massachusetts at Amherst. We believe that Mr. Prelack's

qualifications to serve as a director of the Company include his extensive experience serving as a director in the biotechnology industry.

*Mr. Michael C. Ferrara* served as the Executive Chairman and Chief Executive Officer of Adlens Limited, a company focused on developing adaptive lenses, from June 2011 to August 2016. Previously, he served as the President, Chief Executive Officer, and a board member of Microfluidics International Corporation, a manufacturer of high shear fluid processors for laboratory and processing equipment, from August 2007 to April 2011. Mr. Ferrara also served as the President, Chief Executive Officer, and a board member of X-Rite, Incorporated, a company focused on developing and manufacturing color solutions, including Pantone®, from 2001 to 2006. Earlier in his career, Mr. Ferrara was Chief Executive Officer of N.I. World Trade and held various positions at Westinghouse Electric Corporation. He has also previously served on the board of advisors of several entities, including Villanova University, School of Engineering and PureColor, Inc. Mr. Ferrara holds a B.S. degree in Electrical Engineering from Villanova University and engaged in Professional Management Development at Harvard Business School. We believe that Mr. Ferrara's qualifications to serve as a director of the Company include his numerous executive positions in large global corporations and his extensive experience serving as a director in other companies.

*Mr. Michael R. Jacobson, Esq.* is currently Of Counsel at the law firm Cooley LLP. He rejoined Cooley, where he had previously served as partner and head of the firm's public securities practice, in June 2016. Prior to rejoining Cooley, Mr. Jacobson was Senior Vice President, Legal Affairs, General Counsel and Secretary of eBay Inc. He served in that capacity or as Vice President, Legal Affairs, General Counsel from August 1998 until July 2015. During his tenure at eBay, Mr. Jacobson headed the company's global legal, government relations and regulatory groups, and guided the company through a wide range of high-profile legal matters. Prior to joining eBay, while at Cooley, Mr. Jacobson represented clients in private financings, mergers and acquisitions and capital markets offerings. He also had extensive experience advising public and private companies on general corporate issues, including securities law compliance, corporate governance and corporate transactions. Mr. Jacobson holds a B.A., magna cum laude from Harvard University, and a J.D. from Stanford Law School. We believe that Mr. Jacobson's qualifications to serve as a director of the Company include his deep legal expertise in the areas of public company securities compliance, corporate governance and corporate transactions as well as his experience with the business issues associated with high growth and global expansion.

*Mr. Tae Heum (Ted) Jeong, D.Mgt.* has served as Managing Partner at Kensington-SV Global Innovations, L.P., a transformative innovation-focused venture capital fund targeting early and growth-stage companies primarily in the United States and Korea since 2018. From 2002 through 2018, Dr. Jeong served in various roles of progressive responsibility at Rexahn Pharmaceuticals, Inc. (Nasdaq: REXN), including Chief Financial Officer and Board Director, where he played key roles in the company's business development, private placement, underwritten and registered direct public offerings. From 1997 until 2002, Dr. Jeong served as Senior Investment Manager at Hyundai Venture Investment Corporation, a subsidiary of Hyundai Motors conglomerate and one of the largest venture capital firms in South Korea, where he specialized in venture capital investments in the healthcare industry and assisted in taking numerous companies public. Dr. Jeong holds a BS and MS in Chemistry from Pohang University of Science and Technology in Pohang, South Korea, an MS in Finance from Johns Hopkins University, and a Doctor of Management from the University of Maryland, University College. We believe Dr. Jeong's substantial public company finance experience will assist the Company in its public reporting and funding activities as we grow and develop our Company.

**Composition of the Board of Directors Following the Merger**

It is anticipated that the members of the board of directors of the combined company will continue to be divided into three staggered director classes as follows:

- Class I will consist of Dr. Gullans, Dr. Freeman and Mr. Oh, each with a term expiring at the 2020 annual meeting of stockholders.
- Class II will consist of Ms. Kim, Mr. Ferrara and Mr. Jacobson each with a term expiring at the 2021 annual meeting of stockholders.
- Class III will consist of Mr. Brooks, Ms. Brennan, Mr. Prelack and Dr. Jeong, each with a term expiring at the 2022 annual meeting of stockholders.

There are no family relationships among any of the combined organization's proposed directors and executive officers.

**Director Independence**

Nasdaq listing standards require that the board of directors of the combined company consist of a majority of independent directors, as determined under the applicable rules and regulations of Nasdaq. Gemphire and NeuroBo believe that each of Mr. Oh, Ms. Brennan, Mr. Prelack, Mr. Ferrara, Mr. Jacobson and Dr. Jeong will qualify as an independent director following the completion of the merger.

**Committees of the Board of Directors Following the Merger**

The Gemphire Board currently has, and following completion of the merger, will continue to have the following committees: audit committee, compensation committee and nominating and corporate governance committee.

***Audit Committee***

The Gemphire audit committee responsibilities include overseeing Gemphire's accounting and financial reporting processes, the preparation of Gemphire's audit committee report, compliance with legal and regulatory requirements and evaluating the qualifications, independence and performance of Gemphire's independent auditors. For information regarding Gemphire's audit committee, please see the section entitled "*Gemphire Directors, Officers and Corporate Governance-Gemphire Governance Matters-Committees of the Gemphire Board-Audit Committee*." The audit committee of the combined company is expected to retain these responsibilities following completion of the merger.

In connection with the Closing of the merger, the combined company's board of directors is expected to select members of the audit committee. Gemphire and NeuroBo expect that, after the completion of the merger, the composition of the audit committee of the combined company will meet the requirements for independence under the current Nasdaq and SEC rules and regulations and that each member will be financially literate. NeuroBo and Gemphire also expect that the audit committee of the combined company will have one member qualifying as an "audit committee financial expert" as defined in Item 407(d)(5)(ii) of Regulation S-K promulgated under the Securities Act.

***Compensation Committee***

The Gemphire Compensation Committee responsibilities include evaluating and recommending or approving executive officer and director compensation arrangements, plans, policies and programs, administering Gemphire's cash-based and equity-based compensation plans, and making recommendations to the Gemphire Board regarding any other Gemphire Board responsibilities relating to executive compensation. For information regarding the Gemphire Compensation Committee, please

see the section entitled "*Gemphire Directors, Officers and Corporate Governance-Gemphire Governance Matters-Committees of the Gemphire Board-Compensation Committee*." The compensation committee of the combined company is expected to retain these responsibilities following completion of the merger.

In connection with the Closing of the merger, the combined company's board of directors is expected to select members of the compensation committee. Gemphire and NeuroBo expect that, after the completion of the merger, the composition of the compensation committee will meet the requirements for independence under the current Nasdaq and SEC rules and regulations. Each member of the compensation committee of the combined company is also expected to be a "non-employee" director within the meaning of Rule 16b-3 promulgated under the Exchange Act.

***Nominating and Corporate Governance Committee***

The Gemphire nominating and corporate governance committee responsibilities include identifying, considering and recommending candidates for membership on the Gemphire Board, overseeing the process of evaluating the performance of the Gemphire Board and advising the Gemphire Board on other corporate governance matters. For information regarding Gemphire's nominating and corporate governance committee, please see the section entitled "*Gemphire Directors, Officers and Corporate Governance-Gemphire Governance Matters-Committees of the Gemphire Board-Nominating and Corporate Governance Committee*." The nominating and corporate governance committee of the combined company is expected to retain these responsibilities following completion of the merger.

In connection with the Closing of the merger, the combined company's board of directors is expected to select members of the nominating and corporate governance committee. Gemphire and NeuroBo expect that, after the completion of the merger, the composition of the nominating and corporate governance committee will meet the requirements for independence under the current Nasdaq and SEC rules and regulations.

The board of directors of the combined company may from time to time establish other committees.

**Director Compensation**

NeuroBo does not currently have a director compensation policy, and none of NeuroBo's non-employee directors earned compensation for their service as members of the NeuroBo Board during the year ended December 31, 2018. However, Mr. Brooks and Dr. Kang have earned compensation for other services provided to NeuroBo for the year ended December 31, 2018 related to their employment, consulting and service agreements described above and Dr. Freeman earned compensation pursuant to consulting arrangements as described in the table below.

| Name | All Other Compensation ($)(1) | Total ($) |
|---|---|---|
| Roy Freeman, M.D. | 135,000 | 135,000 |

(1) The amounts in this column for Dr. Freeman represent amounts paid pursuant to consulting agreements by and between NeuroBo and a limited liability company wholly owned by Dr. Freeman as further described below.

On April 1, 2018, Therabo PLLC, a Massachusetts professional limited liability company wholly owned and controlled by Dr. Freeman, and NeuroBo entered into a verbal agreement pursuant to which Dr. Freeman would provide scientific advisory services to NeuroBo and serve as Chairman of NeuroBo's Scientific Advisory Board in exchange for consulting fees of $15,000 per month (the "Initial Freeman Consulting Arrangement"). On March 1, 2019, Dr. Freeman and NeuroBo memorialized this

arrangement pursuant to an Independent Contractor Agreement, by and between NeuroBo and Therabo PLLC (the "Second Freeman Consulting Arrangement"). Per the terms of the Second Freeman Consulting Arrangement, Dr. Freeman continues to serve as a scientific advisor to NeuroBo and as Chairman of NeuroBo's Scientific Advisory Board in exchange for consulting fees of $15,000 per month. Dr. Freeman is also eligible to receive reimbursement for certain out of pocket costs approved in advance by NeuroBo. The Second Freeman Consulting Agreement continues on a month to month basis unless and until the death or disability of Dr. Freeman, the date Dr. Freeman ceases to be the sole owner of Therabo PLLC or it is terminated for cause. The Second Freeman Consulting Agreement may also be terminated upon agreement of the parties or upon agreement of the NeuroBo Board. The Second Freeman Consulting Agreement contains terms customary for consulting agreements of this nature, including provisions requiring that intellectual property relating to or resulting from the services provided by Dr. Freeman be the exclusive property of NeuroBo or its affiliates. Per the terms of the Second Freeman Consulting Agreement, Dr. Freeman is not eligible to participate in any NeuroBo health, life, disability or any NeuroBo insurance plan or to participate in any 401(k), SEP-IRA or other pension or retirement plan offered by NeuroBo to its employees. During the year ended December 31, 2018, Therabo PLLC earned an aggregate of $135,000 in monthly consulting fees and was not paid any amounts in connection with the reimbursement of expenses.

Gemphire's director compensation for the fiscal year ended December 31, 2018 and Gemphire's Non-Employee Director Compensation Policy is described under the section entitled *"Gemphire Directors, Officers and Corporate Governance-Non-Employee Director Compensation."* It is expected that the combined company following the merger will provide compensation to non-employee directors that is in line with Gemphire's current practices.

## RELATED PARTY TRANSACTIONS OF DIRECTORS AND EXECUTIVE OFFICERS OF THE COMBINED ORGANIZATION

Described below are any transactions occurring since January 1, 2017 and any currently proposed transactions to which either Gemphire or NeuroBo was a party and in which:

- The amounts involved exceeded or will exceed the lesser of $120,000 or 1% of the average of the total assets of Gemphire or NeuroBo, as the case may be, at year-end for the last two completed fiscal years; and
- a director, executive officer, holder of more than 5% of the outstanding capital stock of Gemphire, NeuroBo or the combined company or any member of such person's immediate family had or will have a direct or indirect material interest.

Except where specifically noted, the following information and all other information contained in this proxy statement/prospectus/information statement do not give effect to the Gemphire Reverse Stock Split.

### Gemphire Transactions

#### *Director and Executive Officer Compensation*

For information on employment arrangements and compensation for Gemphire's executive officers and directors, see the section entitled "*Gemphire Executive Compensation*" and "*Gemphire Directors, Officers and Corporate Governance—Non-Employee Director Compensation*" in this proxy statement/prospectus/information statement.

#### *Change of Control and Other Severance Arrangements*

See the section entitled "*The Merger—Interests of Gemphire Directors and Executive Officers in the Merger*" in this proxy statement/prospectus/information statement.

#### *Investor Agreements*

In connection with Gemphire's Series A convertible preferred stock financing, Gemphire entered into an investor rights agreement and right of first refusal and co-sale agreement containing voting rights, information rights, rights of first refusal and co-sale and registration rights, among other things, with each of the holders of its Series A convertible preferred stock. On April 14, 2016, Gemphire amended the investor rights agreement to provide registration rights to certain holders of its convertible notes. Certain members of the Gemphire Board, executive officers and related parties were holders of Gemphire's Series A convertible preferred stock prior to the closing of Gemphire's initial public offering. These rights terminated upon the closing of Gemphire's initial public offering, except for the registration rights. These registration rights will terminate as to a given holder of registrable securities upon the earlier of (i) five years following the closing of the initial public offering, (ii) after the consummation of a liquidation event and (iii) when freely tradeable under Rule 144 of the Securities Act.

#### *Indemnity Agreements*

Gemphire has entered into indemnity agreements with each of its current directors and certain of its executive officers to give such directors and officers additional contractual assurances regarding the scope of the indemnification set forth in the Gemphire Certificate of Incorporation and Gemphire Bylaws and to provide additional procedural protections.

***March 2017 Private Placement and Related Registration***

Certain of Gemphire's directors and 5% holders participated in Gemphire's March 2017 private placement wherein Gemphire issued and sold units at a price of $9.47 per unit, with each unit consisting of one share of Gemphire common stock and a warrant to purchase 0.75 shares of Gemphire common stock. The warrants have an exercise price of $10.40 per share and are exercisable for a period of five years from the date of issuance. Pursuant to the terms of the securities purchase agreement, Gemphire filed a registration statement with the SEC in April 2017 to register the resale of the shares of Gemphire common stock and the shares of common stock underlying the warrants, and agreed to keep one or more registration statements registering the shares effective until the earlier to occur of the date on which all of the applicable shares of Gemphire common stock have been sold or can be sold publicly without restriction or limitation under Rule 144 under the Securities Act. The investors in the private placement included the following related parties:

| Name | Number of Units Purchased | Aggregate Purchase Price ($) |
|---|---|---|
| **Greater than 5% stockholders** | | |
| Cormorant Asset Management, LLC | 52,798 | 499,997.06 |
| Excel Venture Fund II, LLC(1) | 52,798 | 499,997.06 |
| **Directors** | | |
| Pedro Lichtinger | 10,559 | $ 99,993.73 |
| Andrew Sassine | 21,119 | 199,996.93 |
| P. Kent Hawryluk(2) | 25,000 | 236,750.00 |

(1) Gemphire's director, Dr. Gullans, was previously a Manager of Excel.

(2) Purchased by the P. Kent Hawryluk Revocable Trust, of which Mr. Hawryluk, a former director of Gemphire, is the trustee.

***February 2018 Follow-On Offering***

Excel Venture Fund II, LLC, previously one of Gemphire's principal stockholders and a former affiliate of Gemphire's President and Chief Executive Officer, purchased 71,429 shares of Gemphire common stock for an aggregate purchase price of $500,003 in Gemphire's underwritten public offering that closed on February 12, 2018.

***Policies and Procedures for Review of Related Party Transactions***

To assist Gemphire in complying with its disclosure obligations and to enhance its disclosure controls, the Gemphire Board approved a formal policy in June 2016 regarding related person transactions. The policy establishes a process for identifying related persons and procedures for reviewing and approving such related person transactions. In addition, directors and executive officers are required to complete an annual questionnaire in connection with Gemphire's proxy statement for its annual meeting of stockholders, which includes questions regarding related person transactions, and such persons also are required to provide written notice to Gemphire or outside legal counsel of any updates to such information prior to the annual meeting. Further, Gemphire's legal, financial and other departments have established additional procedures to assist Gemphire in identifying existing and potential related person transactions and other potential conflict of interest transactions, including policies and procedures designed to comply with Auditing Standard No. 18 issued by the Public Company Accounting Oversight Board.

**NeuroBo Transactions**

Except as set forth herein, there were no transactions to which NeuroBo was a party from January 1, 2017 through the date of this proxy statement/prospectus/information statement with NeuroBo's directors and officers and beneficial owners of more than 5% of NeuroBo's voting securities and their affiliates.

***Series A Convertible Preferred Stock Financing***

In April 2018, NeuroBo issued an aggregate of 4,200,000 shares of its Series A preferred stock at a purchase price of $4.00 per share, for aggregate consideration of approximately $16.8 million. Immediately prior to the Effective Time, each share of NeuroBo Series A preferred stock then outstanding will be converted into one share of NeuroBo common stock in accordance with the applicable provisions of NeuroBo's fourth amended and restated certificate of incorporation. At the Effective Time, each share of NeuroBo common stock will be converted solely into the right to receive a specified number of shares of Gemphire common stock in accordance with the Exchange Ratio.

In connection with the Series A Preferred Stock Finanicng, 3,500,000 shares of NeuroBo's Series A preferred stock was issued to The E & Healthcare Investment Fund II for aggregate consideration of $14,000,000. E&Investment is the sole general partner of The E&Healthcare Investment Fund II and has voting power over the shares held by The E&Healthcare Investment Fund II. Na Yeon (Irene) Kim, a NeuroBo director, is the Chief Executive Officer of E&Investment, and as such has voting and investment control over the shares held by E&Investment and its affiliated funds.

***Series B Convertible Preferred Stock Financing***

In August 2019, NeuroBo issued an aggregate of 3,030,000 shares of its Series B preferred stock at a purchase price of $8.00 per share, for aggregate consideration of approximately $24.2 million. Immediately prior to the Effective Time, each share of NeuroBo Series B preferred stock then outstanding will be converted into one share of NeuroBo common stock in accordance with the applicable provisions of NeuroBo's fourth amended and restated certificate of incorporation. At the Effective Time, each share of NeuroBo common stock will be converted solely into the right to receive a specified number of shares of Gemphire common stock in accordance with the Exchange Ratio.

The following table summarizes the Series B preferred stock purchased by NeuroBo's directors, executive officers and principal stockholders.

| Related Party | Shares of Series B preferred stock | Consideration |
|---|---|---|
| The E &Healthcare Investment Fund No. 6(1) | 900,000 | $ 7,200,000 |
| The E &Healthcare Investment Fund No. 7(2) | 1,500,000 | $ 12,000,000 |
| Eun Soo Kang(3) | 210,000 | $ 1,680,000 |

(1) E&Investment is the sole general partner of The E&Healthcare Investment Fund No. 6 and has voting power over the shares held by The E&Healthcare Investment Fund No. 6. Na Yeon (Irene) Kim, a NeuroBo director, is the Chief Executive Officer of E&Investment, and as such has voting and investment control over the shares held by E&Investment and its affiliated funds.

(2) E&Investment is the sole general partner of The E&Healthcare Investment Fund No. 7 and has voting power over the shares held by The E&Healthcare Investment Fund No. 7. Na Yeon (Irene) Kim, a NeuroBo director, is the Chief Executive Officer of

E&Investment, and as such has voting and investment control over the shares held by E&Investment and its affiliated funds.

(3) Eun Soo Kang is the spouse of Jeong Gyun Oh, the President and Chief Executive Officer of JK BioPharma Solutions, Inc. and Director of NeuroBo.

***Agreements with Dong-A ST***

License Agreement

In January 2018, NeuroBo entered into an exclusive license agreement with Dong-A ST, a holder of more than 5% of NeuroBo's capital stock, for an exclusive, royalty-bearing, worldwide (except for the Republic of Korea) license to make, use, offer to sell, sell and import products covered by certain Dong-A ST intellectual property rights in its proprietary compound designated as DA-9801 (NB-01). In connection with obtaining the license, NeuroBo paid Dong-A ST total consideration of $2.3 million consisting of a one-time upfront license fee and shares of NeuroBo common stock. NeuroBo also entered into an Acquisition Agreement in January 2018 and a Manufacturing and Supply Agreement in September 2018 with Dong-A ST, both of which are related to NeuroBo's license agreement with Dong-A ST. For more information regarding the license agreement with Dong-A ST, see the section entitled "*NeuroBo Business—License Agreement*" in this proxy statement/prospectus/information statement.

Acquisition Agreement

On January 18, 2018, NeuroBo entered into an asset acquisition agreement (the "Acquisition Agreement"), as amended, with Dong-A ST for NB-02 for the treatment of neurodegenerative disorders. Under the terms of the Acquisition Agreement, NeuroBo has the rights to file an investigational new drug application, to conduct further clinical trials, and then produce, commercialize, and sell pharmaceuticals world-wide using NB-02. NeuroBo paid total consideration in cash and shares of NeuroBo common stock of $6.5 million in consideration for this compound.

Manufacturing Agreement

On September 28, 2018, NeuroBo entered into a five year manufacturing and supply agreement (the "Manufacturing Agreement") with Dong-A ST for manufacturing and supply of NB-01 drug substance and placebos for the purpose of research and development to be used in NeuroBo's Phase 3 clinical trials. Under the terms of the Manufacturing Agreement, Dong-A ST has agreed to produce for NeuroBo a specified number of tablets of the NB-01 drug substance and placebos at a supply price to be determined at the time of each individual order. In addition, Dong-A ST and NeuroBo have agreed upon set prices for stability testing of the NB-01 drug substance and placebo. NeuroBo recognized approximately $383,000 of product manufacturing related costs within research and development expenses for the year ended December 31, 2018 and $314,000 for the six-month period ended June 30, 2019.

The Manufacturing Agreement will automatically terminate in the event NeuroBo's license agreement with Dong-A ST is terminated for any reason. In addition, each of Dong-A ST and NeuroBo may terminate the Manufacturing Agreement (1) upon the material breach by the other party, if the breach is not cured within a specified number of days after receiving notice from the terminating party, or if the breach cannot reasonably be cured within such period and the breaching party has not started to remedy the breach within such period and diligently endeavored to cure the breach within a reasonable time thereafter, or (2) in the event that (i) the other party is the subject of a petition for bankruptcy, reorganization, or arrangement and the same is not dismissed within thirty days thereof, (ii) a receiver or trustee is appointed for all or a substantial portion of the assets of the other party, or (iii) the other party makes an assignment for the benefit of its creditors.

***Convertible Promissory Note Financing***

In February 2018, NeuroBo sold to investors an aggregate of $500,000 of convertible promissory notes. The promissory notes accrue interest at a rate of 5% per annum and are due and payable on December 31, 2022. On October 23, 2019, the holders of the promissory notes entered into agreements with NeuroBo providing that the promissory notes will be converted into NeuroBo common stock, effective immediately prior to the closing of the merger, at a conversion price equal to $0.40 per share (which reflects adjustment for the NeuroBo Stock Split).

The participants in the convertible note financing described above included the following holders of more than 5% of NeuroBo's capital stock and NeuroBo executive directors.

| Related Party | Amount of NeuroBo convertible notes purchased |
|---|---|
| JK BioPharma Solutions, Inc. | $ 400,000 |
| Roy Freeman, M.D. | $ 100,000 |

JK Biopharma Solutions, Inc. currently assists NeuroBo with certain activities that are primarily related to linguistic translations. All work done to date has been done without compensation. However, NeuroBo issued a $32,000 payment to JK BioPharma Solutions, Inc. in February 2018 as reimbursement for payments made to NeuroBo vendors during late 2017 and early 2018.

***Agreements with NeuroBo Executive Officers and Directors***

NeuroBo has entered into employment agreements and other consulting arrangements with NeuroBo's executive officers and Dr. Freeman. For more information regarding these agreements, see the section entitled "*NeuroBo Executive Compensation—Narrative Disclosure to NeuroBo Summary Compensation Table*" in this proxy statement/prospectus/information statement and "*Management Following the Merger—Director Compensation*" in this proxy statement/propectus/information statement.

***Indemnification Arrangements***

NeuroBo intends to enter into indemnification agreements with each of its officers and directors, and has purchased directors' and officers' liability insurance. The bylaws of NeuroBo require NeuroBo to indemnify its directors and officers to the fullest extent permitted under Delaware law.

***Policies and Procedures Regarding Related Party Transactions***

While NeuroBo does not have a formal written policy or procedure for the review, approval or ratification of related party transactions, the NeuroBo Board reviews and considers the interests of its directors, executive officers and principal stockholders in its review and consideration of transactions and obtains the approval of non-interested directors when it determines that such approval is appropriate under the circumstances.

## UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION

*The unaudited pro forma condensed combined financial information does not give effect to the Gemphire Reverse Stock Split.*

The following unaudited pro forma condensed combined financial information was prepared using the acquisition method of accounting under U.S. GAAP. For accounting purposes, NeuroBo is considered to be acquiring Gemphire and the merger is expected to be accounted for as an asset acquisition. NeuroBo is considered the accounting acquirer even though Gemphire will be the issuer of the common stock in the merger. To determine the accounting for this transaction under U.S. GAAP, a company must assess whether an integrated set of assets and activities should be accounted for as an acquisition of a business or an asset acquisition. The guidance requires an initial screen test to determine if substantially all of the fair value of the gross assets acquired is concentrated in a single asset or group of similar assets. If that screen is met, the set is not a business. In connection with the acquisition of Gemphire, substantially all the fair value is concentrated in in-process research and development ("IPR&D") and, as such, the acquisition is expected to be treated as an asset acquisition.

The unaudited pro forma combined balance sheet data assume that the merger took place on June 30, 2019 and combines the historical balance sheets of Gemphire and NeuroBo as of such date. The unaudited pro forma condensed combined statement of operations for the year ended December 31, 2018 and the six months ended June 30, 2019 assumes that the merger took place as of January 1, 2018 and combines the historical results of Gemphire and NeuroBo for the year ended December 31, 2018 and the six months ended June 30, 2019, respectively. The unaudited pro forma condensed combined financial information was prepared in accordance with U.S. GAAP and pursuant to the rules and regulations of Article 11 of SEC Regulation S-X. The historical financial statements of Gemphire and NeuroBo have been adjusted to give pro forma effect to events that are (i) directly attributable to the transaction, (ii) factually supportable, and (iii) with respect to the unaudited pro forma condensed combined statements of operations, expected to have a continuing impact on the combined company's results.

Gemphire's assets and liabilities will be measured and recognized at their relative fair values allocation as of the transaction date with any value associated with IPR&D being expensed as there is no alternative future use, and combined with the assets, liabilities and results of operations of NeuroBo after the consummation of the merger.

The unaudited pro forma condensed combined financial information is based on the assumptions and adjustments that are described in the accompanying notes. The accounting for the transaction as an asset acquisition is dependent upon the valuation of the IPR&D and the final calculation of net working capital for Gemphire. Accordingly, the pro forma adjustments are preliminary, subject to further revision as additional information becomes available and additional analyses are performed and have been made solely for the purpose of providing unaudited pro forma condensed combined financial information. Differences between these preliminary estimates and the final accounting, expected to be completed after the closing of the merger, will occur and these differences could have a material impact on the accompanying unaudited pro forma condensed combined financial information and the combined company's future results of operations and financial position. In addition, differences between the preliminary and final amounts will likely occur as a result of the amount of cash used for Gemphire's operations and other changes in Gemphire's assets and liabilities.

The unaudited pro forma condensed combined financial information does not give effect to the potential impact of current financial conditions, regulatory matters, operating efficiencies or other savings or expenses that may be associated with the integration of the two companies. The unaudited pro forma condensed combined financial information is preliminary and has been prepared for illustrative purposes only and is not necessarily indicative of the financial position or results of

operations in future periods or the results that actually would have been realized had Gemphire and NeuroBo been a combined company during the specified periods. The actual results reported in periods following the merger may differ significantly from those reflected in the unaudited pro forma condensed combined financial information presented herein for a number of reasons, including, but not limited to, differences in the assumptions used to prepare this pro forma financial information.

The unaudited pro forma condensed combined financial information, including the notes thereto, should be read in conjunction with the separate historical financial statements of Gemphire and NeuroBo, and their respective management's discussion and analysis of financial condition and results of operations included elsewhere in this proxy statement/prospectus/information statement. Gemphire's audited statement of operations for the year ended December 31, 2018 is derived from Gemphire's Annual Report on Form 10-K for the year ended December 31, 2018. Gemphire's unaudited financial statements for the six months ended June 30, 2019 are derived from Gemphire's Quarterly Report on Form 10-Q for the six months ended June 30, 2019.

Accounting rules require evaluation of certain assumptions, estimates, or determination of financial statement classifications which are completed during the measurement period as defined in current accounting standards. The accounting policies of Gemphire may materially vary from those of NeuroBo. During preparation of the unaudited pro forma condensed combined financial information, management has performed a preliminary analysis and is not aware of any material differences, and accordingly, this unaudited pro forma condensed combined financial information assumes no material differences in accounting policies. Following the acquisition, management will conduct a final review of Gemphire's accounting policies in order to determine if differences in accounting policies require adjustment or reclassification of Gemphire's results of operations or reclassification of assets or liabilities to conform to NeuroBo's accounting policies and classifications. As a result of this review, management may identify differences that, when conformed, could have a material impact on these unaudited pro forma condensed combined financial statements.

**Unaudited Pro Forma Condensed Combined Balance Sheet**

**June 30, 2019**

**(in thousands)**

| | Gemphire | NeuroBo | Pro Forma Adjustments | Notes | Pro Forma Combined |
|---|---|---|---|---|---|
| **Assets** | | | | | |
| **Current assets:** | | | | | |
| Cash and cash equivalents | $ 3,643 | $ 24,588 | — | | $ 28,231 |
| Restricted cash | 15 | — | — | | 15 |
| Prepaid expenses and other current assets | 330 | 30 | — | | 360 |
| **Total current assets** | 3,988 | 24,618 | — | | 28,606 |
| Property and equipment, net | — | 27 | — | | 27 |
| Right-of-use assets and deposits | 26 | 42 | — | | 68 |
| **Total assets** | $ 4,014 | $ 24,687 | — | | $ 28,701 |
| **Liabilities, Redeemable Convertible Preferred Stock, and Stockholders' Equity (Deficit)** | | | | | |
| **Current liabilities:** | | | | | |
| Accounts payable | $ 1,668 | $ 769 | — | | $ 2,437 |
| Accrued expenses | 382 | 331 | 5,905 | D, E | 6,618 |
| **Total current liabilities** | 2,050 | 1,100 | 5,905 | | 9,055 |
| Convertible notes payable | — | 134 | (134) | B, C | — |
| Other long-term liabilities | — | 35 | (35) | C | — |
| **Total liabilities** | 2,050 | 1,269 | 5,736 | | 9,055 |
| Redeemable convertible preferred stock | — | 40,921 | (40,921) | A | — |
| **Stockholders' equity (deficit):** | | | | | |
| Common stock | 22 | — | 9 | H, I | 31 |
| Additional paid-in capital | 92,774 | 2,405 | (40,431) | A, C, E, F, G, H, I | 54,748 |
| Accumulated other comprehensive gain | — | 11 | — | | 11 |
| Accumulated deficit | (90,832) | (19,919) | 75,607 | B, D, F, G, H, I | (35,144) |
| **Total stockholders' equity (deficit)** | 1,964 | (17,503) | 35,185 | | 19,646 |
| **Total liabilities, redeemable convertible preferred stock, and stockholders' equity (deficit)** | $ 4,014 | $ 24,687 | — | | $ 28,701 |

**Unaudited Pro Forma Condensed Combined Statement of Operations**

**For the Six Months Ended June 30, 2019**

**(in thousands, except share and per share data)**

| | Gemphire | NeuroBo | Pro Forma Adjustments | Notes | Pro Forma Combined |
|---|---|---|---|---|---|
| **Operating expenses:** | | | | | |
| Research and development | $ 2,627 | $ 2,748 | — | | $ 5,375 |
| General and administrative | 2,522 | 1,590 | — | | 4,112 |
| **Total operating expenses** | 5,149 | 4,338 | — | | 9,487 |
| **Loss from operations** | (5,149) | (4,338) | — | | (9,487) |
| | | | | | |
| **Other income (expense), net:** | | | | | |
| Interest expense | (820) | (29) | 29 | L | (820) |
| Other income (expense), net | (752) | 2 | 657 | K | (93) |
| **Total other income (expense), net** | (1,572) | (27) | 686 | | (913) |
| **Net loss** | $ (6,721) | $ (4,365) | $ 686 | | $ (10,400) |
| **Net loss per share, basic and diluted** | $ (0.47) | $ (0.97) | | | $ (0.03) |
| **Weighted average common shares outstanding, basic and diluted** | 14,265,411 | 4,520,000 | 289,556,637 | J | 308,342,048 |

**Unaudited Pro Forma Condensed Combined Statement of Operations**

**For the Year Ended December 31, 2018**

**(in thousands, except share and per share data)**

| | Gemphire | NeuroBo | Pro Forma Adjustments | Notes | Pro Forma Combined |
|---|---|---|---|---|---|
| **Operating expenses:** | | | | | |
| Research and development | $ 14,312 | $ 13,881 | — | | $ 28,193 |
| General and administrative | 8,493 | 1,605 | — | | 10,098 |
| **Total operating expenses** | 22,805 | 15,486 | — | | 38,291 |
| **Loss from operations** | (22,805) | (15,486) | — | | (38,291) |
| | | | | | |
| **Other income (expense), net:** | | | | | |
| Interest expense | (654) | (41) | 41 | L | (654) |
| Other income (expense), net | (178) | (2) | — | | (180) |
| **Total other income (expense), net** | (832) | (43) | 41 | | (834) |
| **Net loss** | $ (23,637) | $ (15,529) | $ 41 | | $ (39,125) |
| **Net loss per share, basic and diluted** | $ (1.71) | $ (4.18) | | | $ (0.18) |
| **Weighted average common shares outstanding, basic and diluted** | 13,805,552 | 3,719,123 | 202,970,432 | J | 220,495,107 |

## NOTES TO THE UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION

### 1. Description of Transaction

On July 24, 2019, Gemphire entered into the Original Merger Agreement, as amended by the Merger Agreement Amendment on October 29, 2019 with NeuroBo pursuant to which, Gemphire's wholly owned subsidiary, Merger Sub, will merge with and into NeuroBo, with NeuroBo surviving as a wholly owned subsidiary of Gemphire, in an all-stock transaction. Subject to the terms and conditions of the Merger Agreement, at the Effective Time, (a) each share of NeuroBo common stock outstanding immediately prior to the Effective Time (excluding shares held as treasury stock, held by NeuroBo and dissenting shares) will be converted into the right to receive shares of Gemphire common stock equal to the Exchange Ratio described below; and (b) each outstanding NeuroBo Option that has not previously been exercised prior to the Effective Time will be assumed by Gemphire.

The calculation of the Exchange Ratio under the Merger Agreement and post-closing ownership of Gemphire Stockholders are subject to adjustment based on the enterprise value of Gemphire and NeuroBo at Closing of the Merger, to the extent Gemphire's Parent Cash Amount is negative or to reflect aggregate gross proceeds received by NeuroBo in its Pre-Closing Financing before the Closing of the merger above the minimum required amount and up to and including $50 million.

Consummation of the merger is subject to certain closing conditions, including, among other things, approval by the Gemphire Stockholders and NeuroBo Stockholders, the continued listing of the common stock on the Nasdaq Capital Market, the conversion of all NeuroBo preferred stock and NeuroBo convertible notes into NeuroBo common stock and satisfaction by Gemphire of a Parent Cash Amount of at least negative $3.75 million at closing. In May 2019 and June 2019, NeuroBo entered into subscription agreements with investors for a Series B Preferred Stock financing for approximate gross proceeds of $24,240,000, the minimum required amount under the Merger Agreement, and may enter into additional subscription agreements and receive additional proceeds between signing and Closing of the merger.

The Merger Agreement contains certain termination rights for both Gemphire and NeuroBo, and further provides that, upon termination of the Merger Agreement under specified circumstances, either party may be required to pay the other party a termination fee of $1,000,000, or in some circumstances reimburse the other party's expenses up to a maximum of $500,000.

Following the Closing of the merger, NeuroBo's Chief Executive Officer, John L. Brooks III, will serve as Chief Executive Officer of the combined company and the board of directors of the combined company will be ten directors, consisting of nine directors designated by NeuroBo and Dr. Steven Gullans, Gemphire's current President and Chief Executive Officer.

At the Effective Time, Gemphire will enter into the CVR Agreement. Pursuant to the Merger Agreement and the CVR Agreement, for each share of Gemphire common stock held after giving effect to the Gemphire Reverse Stock Split, Gemphire Stockholders of record as of immediately prior to the Effective Time will receive one CVR entitling such holders to receive, in the aggregate, 80% of the Gross Consideration less other Permitted Deductions received during the CVR Term from the grant, sale or transfer of rights to Gemphire's product candidate gemcabene (other than a grant, sale or transfer of rights involving a sale or disposition of the post-merger combined company) that is entered into during the 10-year period after the Closing of the merger or pursuant to the Beijing SL License Agreement, but not including the $2.5 million upfront gross payment pursuant to the Beijing SL License Agreement.

## NOTES TO THE UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION

**1. Description of Transaction (Continued)**

Under the CVR Agreement, the combined company agreed to commit $1 million to support the further development of gemcabene through the quarter ending March 31, 2020, the funding of which was conditioned upon receipt by Gemphire of the $2.5 million upfront gross payment payable under the Beijing SL License Agreement. The CVRs are not transferable, except in certain limited circumstances, will not be certificated or evidenced by any instrument, will not accrue interest and will not be registered with the SEC or listed for trading on any exchange. The CVR Agreement will be effective prior to the Closing of the merger and will continue in effect until the later of the end of the CVR Term and the payment of all amounts payable thereunder, unless and until earlier terminated upon termination of the Merger Agreement.

**2. Estimated Purchase Price**

The accompanying unaudited pro forma condensed consolidated financial statements reflect an estimated reverse asset acquisition price of approximately $14.8 million. Given that the estimated purchase price is variable depending upon the price of Gemphire common stock, management performed a sensitivity analysis over the change in purchase consideration based on +/– 10% volatility in Gemphire's stock price. An increase or decrease in the price of Gemphire common stock by 10% would increase or decrease the purchase consideration by approximately $1.3 million. Under certain circumstances further described in the merger agreement, the ownership percentages are subject to adjustment to the extent that Gemphire's Parent Cash Amount at the Effective Time is negative or to reflect aggregate gross proceeds received by NeuroBo in the Pre-Closing Financing before the Closing of the merger above the minimum required amount and up to and including $50 million.

The total estimated purchase price and allocated purchase price is summarized as follows (in thousands, except share and per share data):

| | |
|---|---|
| Estimated number of shares of the combined company to be owned by Gemphire's stockholders(i) | 15,886,615 |
| Multiplied by the fair value per share of Gemphire's common stock(ii) | $ 0.81 |
| Total | 12,868 |
| Estimated transaction costs | 1,950 |
| Total estimated purchase price | $ 14,818 |

For purposes of this pro forma analysis, the above estimated purchase price has been allocated based on a preliminary estimate of the fair value of assets and liabilities to be acquired.

| | |
|---|---|
| Net assets as of 6/30/19 | $ (1,991) |
| In process research and development(iii) | 16,809 |
| Total estimated purchase price | $ 14,818 |

(i) The final purchase price will be determined based in part on the number of shares of Gemphire common stock and Gemphire Warrants outstanding immediately prior to the merger. For purposes of this unaudited pro forma condensed combined financial information, the estimated number of shares represents 14,872,411 shares of Gemphire common stock outstanding and 1,014,204 shares underlying Gemphire Warrants

**NOTES TO THE UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION**

**2. Estimated Purchase Price (Continued)**

outstanding. The estimated number of shares does not reflect the impact of the Gemphire Reverse Stock Split that is expected to be effected prior to consummation of the merger.

(ii) The estimated purchase price was based on the closing price as reported on the Nasdaq Capital Market on June 28, 2019. The final purchase price arising from the actual transaction costs, as well as the number of shares of Gemphire common stock and the fair market value of Gemphire common stock outstanding immediately prior to the Closing of the merger could result in a total purchase price different from that assumed in this unaudited pro forma condensed combined financial information, and that difference may be material. Therefore, the estimated consideration expected to be transferred reflected in this unaudited pro forma condensed combined financial information does not purport to represent what the actual consideration transferred will be when the merger is completed. The actual purchase price will fluctuate until the closing date of the merger, and the final valuation of the purchase consideration could differ significantly from the current estimate.

(iii) IPR&D represents the research and development projects of Gemphire which were in-process, but not yet completed, and which NeuroBo plans to advance. This includes the development of gemcabene. Current accounting standards require that the fair value of IPR&D projects acquired in an asset acquisition with no alternative future use be allocated a portion of the consideration transferred and charged to expense at the acquisition date. The acquired assets did not have outputs or employees. The actual purchase price allocated to IPR&D will fluctuate until the closing date of the merger, and the final valuation of the IPR&D consideration could differ significantly from the current estimate.

The actual purchase price allocated to IPR&D will fluctuate until the closing date of the merger, and the final valuation of the IPR&D consideration could differ significantly from the current estimate.

Contingent consideration with respect to the CVR's has not been recorded in the accompanying unaudited pro forma condensed consolidated financial statements as the CVR's do not meet the definition of a derivative and, as illustrated above, the estimated purchase price exceeds the preliminary estimate of the fair value of the assets to be acquired. Rather, any payments made pursuant to the CVR Agreement will be recognized to expense as in-process research and development only when the contingencies as described above are resolved and any resultant consideration is paid or becomes payable.

**3. Pro Forma Adjustments**

Adjustments included in the column under the heading "Pro Forma Adjustments" are primarily based on information contained within the Merger Agreement. Further analysis will be performed after the completion of the merger to confirm the necessity of these estimates.

Given NeuroBo's history of net losses and valuation allowance, management assumed a statutory tax rate of 0%. Therefore the pro forma adjustments to the statement of operations resulted in no additional income tax adjustment to the pro forma financials.

**NOTES TO THE UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION**

**3. Pro Forma Adjustments (Continued)**

The pro forma adjustments relate to the following:

A. To reflect the conversion of NeuroBo convertible preferred stock to Gemphire common stock in connection with the merger.

B. To record the remaining debt discount amortization expense on NeuroBo's convertible notes payable.

C. To reflect the conversion of NeuroBo's convertible notes payable into shares of Gemphire common stock in connection with the merger.

D. To record Gemphire's estimated transaction costs, such as severance and benefits, advisory fees and transactional fees that were not incurred as of June 30, 2019.

E. To record NeuroBo's estimated transaction costs, such as legal, accounting, advisory and other transactional fees that were not incurred as of June 30, 2019.

F. To reflect the full acceleration of unexpired, unexercised and unvested Gemphire Options effective immediately prior to the merger. This pro forma adjustment is not reflected in the unaudited pro forma condensed statement of operations because these amounts are not expected to have a continuing effect on the operating results of the combined company.

G. To reflect the issuance of restricted stock to Gemphire's senior management and board of directors; the shares will fully vest immediately prior to the merger. This pro forma adjustment is not reflected in the unaudited pro forma condensed statement of operations because these amounts are not expected to have a continuing effect on the operating results of the combined company.

H. To eliminate Gemphire's pre-merger common stock, paid-in-capital and accumulated deficit balances.

I. To reflect the expensing of Gemphire's IPR&D and the capitalization of the fair value of the estimated number of shares of the combined company to be owned by Gemphire's stockholders.

J. The pro forma combined basic and diluted net loss per share calculations have been adjusted to reflect the pro forma net loss for the six months ended June 30, 2019 and the year ended December 31, 2018. In addition, the number of shares used in calculating the pro forma combined basic and diluted net loss per share has been adjusted to reflect the estimated total number of shares of common stock of the combined company that would be outstanding on a weighted-average basis as of the closing of the Merger. The following table is a reconciliation of

**NOTES TO THE UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION**

**3. Pro Forma Adjustments (Continued)**

the Company's historical basic and diluted earnings per share to its pro forma basic and diluted earnings per share for the six months ended June 30, 2019 and the year ended December 31, 2018.

| | | Six Months Ended June 30, 2019 | Year Ended December 31, 2018 |
|---|---|---|---|
| **Basic and Diluted EPS:** | | | |
| As reported (Gemphire) | **A/D** | $ (0.47) | $ (1.71) |
| As reported (Neurobo) | **B/E** | $ (0.97) | $ (4.18) |
| Pro forma | **C/F** | $ (0.03) | $ (0.18) |
| | | | |
| **Net loss (in thousands):** | | | |
| As reported (Gemphire) | **A** | $ (6,721) | $ (23,637) |
| As reported (Neurobo) | **B** | $ (4,365) | $ (15,529) |
| Add: Gemphire's transaction costs expensed through the statement of operations | | $ 657 | — |
| Add: Interest expense associated with Neurobo's convertible notes | | $ 29 | $ 41 |
| Pro forma | **C** | $ (10,400) | $ (39,125) |
| | | | |
| **Basic and Diluted Weighted Average Shares:** | | | |
| As reported (Gemphire) | **D** | 14,265,411 | 13,805,552 |
| As reported (Neurobo) | **E** | 4,520,000 | 3,719,123 |
| Add: Application of the estimated Exchange Ratio of 22.48 to NeuroBo's weighted average common shares outstanding | | 97,070,209 | 79,870,813 |
| Add: Conversion of NeuroBo's convertible preferred stock upon closing of the Merger | | 162,499,383 | 94,397,982 |
| Add: Conversion of NeuroBo's convertible notes and accrued interest upon closing of the Merger | | 29,380,045 | 28,094,637 |
| Add: Issuance of restricted stock to Gemphire's senior management and board of directors | | 607,000 | 607,000 |
| Pro forma | **F** | 308,342,048 | 220,495,107 |

The pro forma adjustments to NeuroBo's convertible notes and accrued interest as set forth in the table above assume a conversion date as of the beginning of the period presented.

The application of the estimated exchange ratio of 22.48 to NeuroBo's weighted-average common shares outstanding as set forth in the table above is based on the pro forma post-closing capitalization as of June 30, 2019 and assumes (i) NeuroBo's convertible notes and accrued interest are converted as of January 1, 2019, (ii) gross proceeds to NeuroBo of $24,240,000 in its pre-closing financing, and (iii) Gemphire's net assets at closing is equal to $(2.0) million at the closing of the merger.

Accordingly, pro forma combined basic and diluted net loss per share reflects the pro forma combined net loss for the period presented over the pro forma combined weighted-average

**NOTES TO THE UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION**

**3. Pro Forma Adjustments (Continued)**

common shares outstanding for the period presented as reflected on the unaudited pro forma condensed combined statement of operations for such period.

K. To reflect the elimination of Gemphire's transaction costs expensed through the statement of operations for the period ended June 30, 2019.

L. To reverse interest expense associated with the convertible notes, the pro forma income statement assumes conversion of the notes at the beginning of the period presented.

Adjustments to accrued expenses are as follows (in thousands):

| | June 30, 2019 |
|---|---|
| Gemphire's estimated transaction costs (D) | $ 3,955 |
| Neurobo's estimated transaction costs (E) | 1,950 |
| Total | $ 5,905 |

Adjustments to convertible notes payable are as follows (in thousands):

| | June 30, 2019 |
|---|---|
| Debt discount amortization expense on Neurobo's convertible notes payable (B) | $ 366 |
| Conversion of Neurobo's convertible notes payable (C) | (500) |
| Total | $ (134) |

Adjustments to additional-paid-in-capital are as follows (in thousands):

| | June 30, 2019 |
|---|---|
| Conversion of Neurobo's preferred stock (A) | $ 40,921 |
| Conversion of Neurobo's convertible notes payable and accrued interest (C) | 535 |
| Neurobo's estimated transaction costs (E) | (1,950) |
| Acceleration of unexpired, unexercised and unvested Gemphire stock options (F) | 3,879 |
| Issuance of common stock upon acceleration of restricted stock to Gemphire's senior management and board of directors (G) | 492 |
| Eliminate Gemphire's pre-merger additional paid-in-capital balance (H) | (97,145) |
| To reflect the fair value of Gemphire's remaining stock post-merger (I) | 12,837 |
| Total | $ (40,431) |

**NOTES TO THE UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION**

**3. Pro Forma Adjustments (Continued)**

Adjustments to accumulated deficit are as follows (in thousands):

| | June 30, 2019 |
|---|---|
| Debt discount amortization expense on Neurobo's convertible notes payable (B) | $ (366) |
| Gemphire's estimated transaction costs (D) | (3,955) |
| Acceleration of unexpired, unexercised and unvested Gemphire stock options (F) | (3,879) |
| Issuance of common stock upon acceleration of restricted stock to Gemphire's senior management and board of directors (G) | (492) |
| Eliminate Gemphire's pre-merger accumulated deficit balance (H) | 99,158 |
| To reflect the fair value of Gemphire's remaining stock post-merger (I) | (14,859) |
| Total | $ 75,607 |

## DESCRIPTION OF GEMPHIRE CAPITAL STOCK

*The following description of Gemphire's capital stock is not complete and may not contain all the information you should consider before investing in Gemphire's capital stock. This description is summarized from, and qualified in its entirety by reference to, the Gemphire Certificate of Incorporation, which has been publicly filed with the SEC. See the section entitled "Where You Can Find More Information" in this proxy statement/prospectus/information statement. The following information does not give effect to the Gemphire Reverse Stock Split described in Proposal No. 2 in this proxy statement/prospectus/information statement.*

### General

As of the date of this proxy statement/prospectus/information statement, Gemphire's authorized capital stock consists of 100,000,000 shares of common stock, $0.001 par value per share, and 10,000,000 shares of preferred stock, $0.001 par value per share. As of September 30, 2019, there were 14,872,411 shares of Gemphire common stock outstanding and no shares of preferred stock outstanding.

The following summary description of Gemphire's capital stock is based on the provisions of the Gemphire Certificate of Incorporation and the Gemphire Bylaws, the applicable provisions of the General Corporation Law of the State of Delaware, or DGCL, and the agreements described below. This information may not be complete in all respects and is qualified entirely by reference to the provisions of the Gemphire Certificate of Incorporation and the Gemphire Bylaws, the DGCL and such agreements. For information on how to obtain copies of the Gemphire Certificate of Incorporation, Gemphire Bylaws and such agreements, which are exhibits to the registration statement of which this proxy statement/prospectus/information statement is a part, see the section entitled "*Where You Can Find More Information*."

### Common Stock

Gemphire Stockholders are entitled to one vote for each share held of record on all matters submitted to a vote of stockholders. Gemphire Stockholders do not have cumulative voting rights in the election of directors. Subject to preferences that may be applicable to any outstanding shares of preferred stock, Gemphire Stockholders are entitled to receive ratably such dividends as may be declared by the Gemphire Board out of legally available funds. Upon liquidation, dissolution or winding up, Gemphire Stockholders are entitled to share ratably in all assets remaining after payment of liabilities and the liquidation preferences of any outstanding shares of preferred stock. Gemphire Stockholders have no preemptive rights and no right to convert their common stock into any other securities. There are no redemption or sinking fund provisions applicable to Gemphire common stock.

The rights of Gemphire Stockholders are subject to, and may be adversely affected by, the rights of holders of shares of any preferred stock that Gemphire may designate and issue in the future.

### Listing

Gemphire common stock is listed on the Nasdaq Capital Market under the symbol "GEMP."

### Transfer Agent and Registrar

The transfer agent and registrar for Gemphire common stock is Computershare, Inc. The transfer agent and registrar's address is 462 South 4th Street, Suite 1600, Louisville, KY 40202and the telephone number is 800-736-3001.

**Preferred Stock**

The Gemphire Certificate of Incorporation provides that the Gemphire Board has the authority, without further action by the stockholders, to designate and issue up to 10,000,000 shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, and to determine or alter for each such series, such voting powers, full or limited, or no voting powers, and such designation, preferences, and relative, participating, optional, or other rights and such qualifications, limitations, or restrictions thereof, and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding. The Gemphire Board may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of Gemphire common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deterring or preventing a change in control of Gemphire or making removal of management more difficult, and may adversely affect the market price of Gemphire common stock and the voting and other rights of the holders of Gemphire common stock.

**Gemphire Options**

As of September 30, 2019, there were 2,546,268 shares of Gemphire common stock issuable upon the exercise of outstanding stock options, at a weighted-average exercise price of $8.92 per share.

**Gemphire Warrants**

*Private Placement Warrants*

As of September 30, 2019, there were 978,204 shares of Gemphire common stock issuable upon the exercise of warrants issued in connection with Gemphire's March 2017 private placement. The warrants have an exercise price of $10.40 per share and are exercisable for a period of five years from the date of issuance. The exercise price and number and type of shares underlying the warrants are subject to adjustment upon specified events, including any stock dividends and splits, reverse stock split, recapitalization, reorganization or similar transaction, as described therein.

*SVB Warrant*

As of September 30, 2019, there were 36,000 shares of Gemphire common stock issuable upon the exercise of a warrant issued in connection with Gemphire's Loan Agreement with SVB. The warrant has an exercise price of $7.47 per share, and expires on July 31, 2028. The exercise price and number and type of shares underlying the warrant are subject to adjustment upon specified events, including any stock dividends and splits, reverse stock split, recapitalization, reorganization or similar transaction, as described therein. The warrant contains a "cashless exercise" feature that allows SVB to exercise the warrant without a cash payment to Gemphire, on a net issuance basis, based upon the fair market value of Gemphire common stock.

**Registration Rights**

***Investor Rights Agreement***

Certain holders of shares of Gemphire common stock, or their transferees, are entitled to the registration rights set forth below with respect to registration of the resale of such shares under the Securities Act pursuant to the investors' rights agreement by and among Gemphire and certain of its stockholders.

*Demand Registration Rights*

At any time upon the written request of certain holders of approximately 218,484 shares of Gemphire common stock that Gemphire file a registration statement under the Securities Act covering the registration of the registrable securities having an aggregate offering price to the public of not less than $5 million, Gemphire will be obligated to notify all holders of registrable securities of such request and to use its reasonable best efforts to register the sale of all registrable securities that holders may request to be registered. Gemphire is not required to effect more than two registration statements which are declared or ordered effective. Gemphire may postpone the filing or effectiveness of a registration statement for up to 90 days once in any twelve month period if the Gemphire Board determines in its good faith judgment that such registration and offering would materially and adversely affect it.

*"Piggyback" Registration Rights*

If Gemphire registers any securities for public sale solely for cash, holders of approximately 218,484 shares of Gemphire common stock will have the right to include their shares in the registration statement. These piggyback registration rights are subject to specified conditions and limitations, including the right of the underwriters of any underwritten offering to limit the number of shares having registration rights to be included in the registration statement, but not below 30% of the total number of shares included in the registration statement.

*Form S-3 Registration Rights*

Holders of at least 20% of the outstanding registrable securities (or holders of approximately 218,484 shares of Gemphire common stock) will have the right to demand that Gemphire file a registration statement on Form S-3 so long as the aggregate price to the public of the securities to be sold under the registration statement on Form S-3 is at least $5 million. Gemphire is not required to effect more than two registrations on Form S-3 in any 12-month period. The right to have such shares registered on Form S-3 is further subject to other specified conditions and limitations. Upon such a request, Gemphire will be required to use its reasonable best efforts to file the registration as soon as practicable.

*Expenses of Registration*

Generally, Gemphire is required to bear all registration expenses incurred in connection with the demand, piggyback and Form S-3 registrations described above. All selling expenses incurred in connection with such registrations shall be borne by the holders of the securities so registered.

*Expiration of Registration Rights*

The demand, piggyback and Form S-3 registration rights discussed above will terminate upon the earlier of (i) five years following the closing of Gemphire's initial public offering or (ii) after the consummation of a liquidation event or, as to any holder of registrable securities, the date on which such holder is able to dispose of all of its registrable securities in a single transaction pursuant to Rule 144 of the Securities Act.

The foregoing registration rights do not apply or have been waived with respect to the registration statement of which this proxy statement/prospectus/information statement is a part, and no shares held by or issuable to the foregoing investors are registered for resale hereunder.

***Private Placement Registration Rights Agreement***

In March 2017, Gemphire completed a private placement of Gemphire common stock and warrants. In connection with the private placement, Gemphire entered into a registration rights agreement with the purchasers, pursuant to which Gemphire agreed to file a registration statement with the SEC covering the resale of the shares of Gemphire common stock sold in the private placement and the shares of Gemphire common stock issuable upon exercise of the warrants, within 30 days of the closing. On April 20, 2017, the registration statement on Form S-1 (File No 333-217296) for the resale of the shares of Gemphire common stock issued in the private placement and the shares of Gemphire common stock to be issued upon exercise of the warrants issued in the private placement was declared effective by the SEC, and on September 1, 2017, Gemphire filed a post-effective amendment to convert the registration statement into Form S-3 for the registration of any unsold private placement shares, which included an updated prospectus relating to such unsold shares.

The foregoing registration rights do not apply to the registration statement on Form S-4 of which this proxy statement/prospectus/information statement is a part and no shares held by or issuable to the investors with registration rights are registered for resale hereunder.

**Anti-Takeover Provisions**

***Delaware Anti-Takeover Law***

Gemphire is subject to Section 203 of the DGCL. Section 203 generally prohibits a public Delaware corporation such as Gemphire from engaging in a "business combination" with an "interested stockholder" for a period of three years following the time that the stockholder became an interested stockholder, unless:

- prior to the time the stockholder became an interested stockholder, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding (a) shares owned by persons who are directors and also officers and (b) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- at or subsequent to the time the stockholder became an interested stockholder, the business combination is approved by the board and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66-2/3% of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, lease, exchange, mortgage, pledge, transfer or other disposition (in one transaction or a series of transactions) involving the interested stockholder of 10% or more of the assets of the corporation (or its majority-owned subsidiary);
- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;

- subject to exceptions, any transaction involving the corporation that has the effect, directly or indirectly, of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; and

- the receipt by the interested stockholder of the benefit, directly or indirectly (except proportionately as a stockholder of such corporation), of any loans, advances, guarantees, pledges or other financial benefits, other than certain benefits set forth in Section 203, provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person that is an affiliate or associate of such entity or person.

***Charter Documents***

The Gemphire Certificate of Incorporation and Gemphire Bylaws provide that the Gemphire Board be divided into three classes of directors, as nearly equal in number as possible, with each class serving a staggered three-year term. The classification system of electing directors may tend to discourage a third-party from making a tender offer or otherwise attempting to obtain control of Gemphire since the classification of the board of directors generally increases the difficulty of replacing a majority of directors. In addition, the Gemphire Certificate of Incorporation and Gemphire Bylaws:

- provide that any action required or permitted to be taken by Gemphire Stockholders must be effected at a duly called annual or special meeting of stockholders and may not be effected by any consent in writing;

- establish advance notice requirements for nominations for election to the Gemphire Board or for proposing matters that can be acted upon at a stockholder meeting;

- provide that the authorized number of directors may be changed only by resolution of the board of directors; and

- provide that special meetings of Gemphire Stockholders may be called only by the chairman of the Gemphire Board, the Gemphire chief executive officer or the Gemphire Board pursuant to a resolution adopted by a majority of the total number of authorized directors.

The DGCL provides generally that the affirmative vote of a majority of the shares entitled to vote is required to amend a corporation's bylaws, unless a corporation's certificate of incorporation requires a greater percentage or also confers the power upon the corporation's directors. The Gemphire Bylaws may be amended or repealed by:

- the affirmative vote of a majority of Gemphire's directors then in office; or

- the affirmative vote of the holders of at least 66-2/3% of the voting power of all then-outstanding shares of Gemphire capital stock entitled to vote generally in the election of directors.

The foregoing provisions of the Gemphire Certificate of Incorporation may only be amended or repealed by the affirmative vote of a majority of Gemphire directors and the affirmative vote of the holders of at least 66-2/3% of the voting power of all then-outstanding shares of Gemphire capital stock entitled to vote generally in the election of directors.

These and other provisions contained in the Gemphire Certificate of Incorporation or Gemphire Bylaws could delay or discourage some types of transactions involving an actual or potential change in control or change in management, including transactions in which stockholders might otherwise receive a premium for their shares over then current prices, and may limit the ability of stockholders to remove current management or approve transactions that stockholders may deem to be in their best interests and, therefore, could adversely affect the price of Gemphire common stock.

## COMPARISON OF RIGHTS OF HOLDERS OF GEMPHIRE STOCK AND NEUROBO STOCK

Both Gemphire and NeuroBo are incorporated under the laws of the State of Delaware and, accordingly, the rights of the stockholders of each are currently, and will continue to be, governed by the DGCL. If the merger is completed, NeuroBo Stockholders will become Gemphire Stockholders, and their rights will be governed by the DGCL, the Gemphire Bylaws and the Gemphire Certificate of Incorporation, as amended by the amendments thereto attached to this proxy statement/prospectus/information statement as *Annexes B* and *C*, assuming Proposal Nos. 2 and 3 are approved by Gemphire Stockholders at the Gemphire annual meeting.

The table below summarizes the material differences between the current rights of NeuroBo's Stockholders under NeuroBo's certificate of incorporation and bylaws, and the rights of Gemphire Stockholders, post-merger, under the Gemphire Certificate of Incorporation and Gemphire Bylaws, each as amended, as applicable, and as in effect immediately following the merger.

While Gemphire and NeuroBo believe that the summary tables cover the material differences between the rights of their respective stockholders prior to the merger and the rights of Gemphire Stockholders following the merger, these summary tables may not contain all of the information that is important to you. These summaries are not intended to be a complete discussion of the respective rights of Gemphire Stockholders and NeuroBo Stockholders and are qualified in their entirety by reference to the DGCL and the various documents of Gemphire and NeuroBo that are referred to in the summaries. You should carefully read this entire proxy statement/prospectus/information statement and the other documents referred to in this proxy statement/prospectus/information statement for a more complete understanding of the differences between being a stockholder of Gemphire or NeuroBo before the merger and being a Gemphire Stockholders after the merger. Gemphire has filed copies of the Gemphire Certificate of Incorporation and Gemphire Bylaws with the SEC and will send copies of the documents referred to in this proxy statement/prospectus/information statement to you upon your request. NeuroBo will also send copies of its documents referred to in this proxy statement/prospectus/information statement to you upon your request. See the section entitled "*Where You Can Find More Information*" in this proxy statement/prospectus/information statement.

**Current NeuroBo Rights Versus Post-Merger Gemphire Rights**

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| | **Elections; Voting; Procedural Matters** | |
| Authorized Capital Stock | The fourth amended and restated certificate of incorporation of NeuroBo authorizes the issuance of up to 50,000,000 shares of common stock, par value $0.0001 per share, and 12,000,000 shares of preferred stock, par value $0.0001 per share. | The Gemphire Certificate of Incorporation authorizes the issuance of up to 100,000,000 shares of common stock, par value $0.001 per share, and 10,000,000 shares of preferred stock, par value $0.001 per share. |
| Number of Directors | The third amended and restated bylaws of NeuroBo currently provide that the NeuroBo Board shall consist of one or more members not to exceed ten and that the number of directors may be determined from time to time by resolution of the NeuroBo Board. | The Gemphire Certificate of Incorporation currently provides that the number of directors that constitute the whole Gemphire Board is established by the Gemphire Board. |

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| | The fourth amended and restated certificate of incorporation of NeuroBo provides that (a) the holders of Series A Preferred Stock shall be entitled to elect one "Series A" director; (b) the holders of Series B Preferred Stock shall be entitled to elect two "Series B" directors; and (c) the holders of common stock shall be entitled to elect two directors. | |
| Stockholder Nominations and Proposals | Except as provided above, the fourth amended and restated certificate of incorporation and third amended and restated bylaws of NeuroBo do not provide for procedures with respect to stockholder proposals or director nominations. | The Gemphire Bylaws provide that in order for a stockholder to make a director nomination or propose business at an annual meeting of stockholders, the stockholder must give timely written notice to the Gemphire secretary, which must be received not more than 120 calendar days before and not less than 90 calendar days before the one year anniversary of the date of the previous year's annual meeting (with certain adjustments if no annual meeting was held the previous year or the date of the annual meeting is changed by more than 30 days from the first anniversary of the preceding year's annual meeting) |
| Classified Board of Directors | The fourth amended and restated certificate of incorporation of NeuroBo does not provide for the division of the NeuroBo Board into staggered classes | The Gemphire Certificate of Incorporation provides that the directors comprising the Gemphire Board shall be divided into three staggered classes, with each class serving a three-year term. |
| Removal of Directors | The third amended and restated bylaws of NeuroBo provide that directors shall hold office for a term of one year and until their successors are duly elected and qualified, subject to their earlier death, resignation or removal. Any director may resign at any time upon notice to NeuroBo. | Under the Gemphire Certificate of Incorporation, a director may be removed from office at any time, but only for cause and only by the affirmative vote of the holders of $66^{2}/3$% of the voting power of all then outstanding shares of capital stock of Gemphire entitled to vote generally at an election of directors. |

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| Special Meetings | The third amended and restated bylaws of NeuroBo provide that special meetings of stockholders may be called by the Chairman of the Board, the President, the NeuroBo Board or the Secretary upon the written request of stockholders owning not less than one-fourth (1/4th) of the shares of capital stock of the Corporation issued and outstanding and entitled to vote at such meeting. | The Gemphire Certificate of Incorporation and Gemphire Bylaws provide that a special meeting of the stockholders may be called by the chairman of the Gemphire Board, the chief executive officer or president, by the Gemphire Board pursuant to a resolution adopted by a majority of the total number of authorized directors. |
| Cumulative Voting | The fourth amended and restated certificate of incorporation and third amended and restated bylaws of NeuroBo do not have a provision granting cumulative voting rights in the election of its directors. | The Gemphire Certificate of Incorporation and Gemphire Bylaws do not have a provision granting cumulative voting rights in the election of its directors, unless so required by applicable law. |
| Vacancies | The third amended and restated bylaws of NeuroBo provide that any vacancy or newly created directorships on the NeuroBo Board may be filled by a majority of the remaining members of the NeuroBo Board, even if less than a quorum, or by a plurality of the votes cast at a meeting of the stockholders. Notwithstanding the foregoing, the fourth amended and restated certificate of incorporation of NeuroBo provides that certain stockholders shall have the right to fill specific board seats (see "—*Number of Directors*" above) | The Gemphire Certificate of Incorporation and Gemphire Bylaws provide that, subject to the rights of holders of any series of preferred stock, any vacancy or newly created directorships on the Gemphire Board will be filled only by a majority of the directors then in office, or by a sole remaining director, and shall not be filled by the stockholders. |
| Voting Stock | Under the fourth amended and restated certificate of incorporation of NeuroBo, the holders of NeuroBo common stock are entitled to one vote for each share of stock held by them, and holders of NeuroBo preferred stock are entitled to one vote for each share of NeuroBo Common Stock into which such share of NeuroBo preferred stock is convertible. Additionally, the fourth amended and restated certificate of incorporation of NeuroBo provides that certain stockholders shall have the right to fill specific board seats (see "—*Number of Directors*" above). | Under the Gemphire Bylaws, the holders of voting stock are entitled to vote on each matter properly submitted to the stockholders at a meeting of the stockholders and shall be entitled to cast one vote in person or by proxy for each share of voting stock held by them respectively as of the record date fixed by the secretary at least 10 days before the meeting of the stockholders. |

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| Stockholder Action by Written Consent | The third amended and restated bylaws of NeuroBo provide that any action required or permitted to be taken at any annual or special meeting of stockholders may be taken without a meeting, without prior notice and without a vote, if a consent in writing, setting forth the action so taken, is signed by the holders of outstanding stock having not less than the number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote on such action were present and voted. | The Gemphire Certificate of Incorporation and Gemphire Bylaws specify that any action required or permitted to be taken by Gemphire Stockholders must be effected at a duly called annual or special meeting of Gemphire Stockholders and may not be effected written consent or electronic transmission. |
| Notice of Stockholder Meeting | The third amended and restated bylaws of NeuroBo provide that written notice of all meetings of stockholders shall be given, stating the date, time and place, if any, of the meeting, the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at such meeting, and the record date for determining stockholders entitled to notice of the meeting. The notice of a special meeting shall state, in addition, the purpose or purposes for which the meeting is called. The third amended and restated bylaws of NeuroBo provide that notice of each meeting of stockholders shall be given not less than 10 nor more than 60 days before the date of the meeting to each stockholder of record entitled to vote at such meeting | Under the Gemphire Bylaws, written notice of each stockholder meeting must specify the place, if any, date and hour of the meeting, the means of remote communication, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at such meeting, and, in the case of a special meeting, the purposes for which the meeting is called. Notice shall be given not less than 10 nor more than 60 calendar days before the date of the meeting to each stockholder entitled to vote at such meeting. |

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| Conversion Rights and Protective Provisions | The fourth amended and restated certificate of incorporation of NeuroBo provides that holders of NeuroBo preferred stock have the right to convert such shares into shares of NeuroBo common stock at any time at a conversion rate in accordance with the terms of NeuroBo's fourth amended and restated certificate of incorporation, as amended. In the event of a liquidation, dissolution or winding up of NeuroBo or a deemed liquidation event, the conversion rights shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of preferred stock. In addition, no fractional shares of common stock shall be issued upon conversion of the preferred stock. In order for a holder of Series A Preferred Stock or Series B Preferred Stock to voluntarily convert shares of such preferred stock into shares of common stock, such holder shall (a) provide written notice to NeuroBo's transfer agent at the office of the transfer agent for the Series A Preferred Stock or Series B Preferred Stock, as applicable, that such holder elects to convert all or any number of such holder's shares of Series A Preferred Stock or Series B Preferred Stock, and, if applicable, any event on which such conversion is contingent and (b), if such holder's shares are certificated, surrender the certificate or certificates for such shares of preferred stock, at the office of the transfer agent for the Series A Preferred Stock or Series B Preferred Stock, as applicable. | The Gemphire Certificate of Incorporation does not provide that holders of Gemphire's capital stock have preemptive, conversion or other protective rights. |

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| | Upon either (a) the closing of an initial public offering of shares of NeuroBo common stock or a reverse merger of NeuroBo or (b) in the case of the Series A Preferred Stock, April 9, 2028 or in the case of Series B Preferred Stock, May 30, 2029, then (i) all outstanding shares of Series A Preferred Stock and/or Series B Preferred Stock, as applicable, shall automatically be converted into shares of NeuroBo common stock, at the then effective conversion rate as calculated pursuant to the fourth amended and restated certificate of incorporation of NeuroBo and (ii) such shares may not be reissued by NeuroBo.<br><br>At any time when at least 1,750,000 shares of Series A Preferred Stock are outstanding (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization) and at any time when at least 312,500 shares of Series B Preferred Stock are outstanding (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization), NeuroBo shall not, without the written consent or affirmative vote of the holders of at least two-thirds of the outstanding shares of NeuroBo preferred stock: (i) liquidate, dissolve or wind-up the business and affairs of NeuroBo, effect any merger or consolidation or any Deemed Liquidation Event (as defined in the fourth amended and restated certificate of incorporation of NeuroBo), or consent to any of the foregoing; (ii) amend, alter or repeal any provision of the fourth amended and restated certificate of incorporation or third amended and restated by-laws of NeuroBo in a manner that adversely affects the powers, preferences or rights of the NeuroBo preferred stock; (iii) create | |

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| | or authorize the creation of, or issue or obligate itself to issue shares of, any additional class or series of capital stock unless it is junior to the NeuroBo, or increase the authorized number of shares of preferred stock or any additional class or series of capital stock unless it is junior to the NeuroBo preferred stock; (iv) reclassify, alter or amend any existing security of NeuroBo that is pari passu with or senior to the Series A Preferred Stock or Series B Preferred stock in respect of the distribution of assets, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to the Series A Preferred Stock or Series B Preferred Stock in respect of any such right, preference or privilege; (v) purchase, redeem, pay or declare dividends on any NeuroBo capital stock other than on shares of the preferred stock required pursuant to the fourth amended and restated certificate of incorporation of NeuroBo; (vi) create, issue or authorize the creation or issuance of any debt security or create any lien or security interest or incur other indebtedness for borrowed money if the aggregate indebtedness of NeuroBo and its subsidiaries for borrowed money following such action would exceed $100,000, other than equipment leases, bank lines of credit or trade payables incurred in the ordinary course of business, unless such debt security has received the prior approval of the NeuroBo Board, including a majority of the directors elected by holders of NeuroBo preferred stock; (vii) create or hold capital stock in any subsidiary that is not wholly owned by NeuroBo, or permit any subsidiary to create, or authorize the creation of, or issue or obligate itself to issue, any | |

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| | shares of any class or series of capital stock, or sell, transfer or otherwise dispose of any capital stock of any direct or indirect subsidiary of NeuroBo, or permit any direct or indirect subsidiary to sell, lease, transfer, exclusively license or otherwise dispose of all or substantially all of the assets of such subsidiary; or (viii) issue any rights, options or warrants to purchase shares of the capital stock of NeuroBo that are, or may become, convertible or exchangeable for shares of the capital stock of NeuroBo representing more than ten percent (10%) of the then-current aggregate issued and outstanding shares of NeuroBo | |
| Right of First Refusal | The Fourth Amended and Restated Stockholders' Agreement entered into among NeuroBo and certain NeuroBo stockholders dated May 30, 2019 provides that any holder of NeuroBo common stock that is a party to the Fourth Amended and Restated Stockholders' Rights Agreement wishing to transfer any shares of NeuroBo common stock shall first provide NeuroBo with the right to purchase such shares. In such an event, if NeuroBo does not elect to exercise its right of first refusal in full, any holder of NeuroBo preferred stock has a secondary right of first refusal to purchase all or any portion of the shares of NeuroBo common stock which are proposed for sale or transfer by the holders of NeuroBo common stock that are a party to the Fourth Amended and Restated Stockholders' Rights Agreement of NeuroBo. The Fourth Amended and Restated Stockholders' Rights Agreement of NeuroBo will terminate upon the Closing of the merger. | Gemphire does not have a right of first refusal in place. |

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| Right of Co-Sale | As further described in the Fourth Amended and Restated Stockholders' Rights Agreement of NeuroBo, each holder of NeuroBo preferred stock has a right of co-sale with respect to any NeuroBo common stock proposed to be transferred or sold by any holder of NeuroBo common stock that is a party to the Fourth Amended and Restated Stockholders' Rights Agreement of NeuroBo which is not earlier purchased by NeuroBo by exercise of its right of first refusal (as further described above) or by any holder of NeuroBo preferred stock by exercise of their secondary right of first refusal (as further described above). | Gemphire does not have a right of co-sale in place. |
| Drag-Along Rights | The Fourth Amended and Restated Stockholders' Rights Agreement of NeuroBo provides that if the holders of at least two-thirds of the shares of issued and outstanding of Series A Preferred Stock and Series B Preferred Stock on an as converted basis approve a sale of NeuroBo or the resale of shares of NeuroBo capital stock by NeuroBo stockholders representing more than 50% of the voting power of NeuroBo or a deemed liquidation event, the NeuroBo stockholders that are party to the Fourth Amended and Restated Stockholders' Rights Agreement of NeuroBo shall vote all their shares of NeuroBo capital stock in favor of such transaction and sell all their shares of NeuroBo capital stock pursuant to the terms of such transaction. The Fourth Amended and Restated Stockholders' Rights Agreement of NeuroBo will terminate immediately prior to the completion of the merger. | Gemphire does not have drag along rights in place. |

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| Right of First Offer | The Fourth Amended and Restated Stockholders' Rights Agreement of NeuroBo provides that if NeuroBo proposes to offer or sell any new shares of NeuroBo capital stock, NeuroBo shall first offer such shares to each NeuroBo stockholder that is party to the Fourth Amended and Restated Stockholders' Rights Agreement of NeuroBo. The Fourth Amended and Restated Stockholders' Rights Agreement of NeuroBo will terminate immediately prior to the completion of the merger. | Gemphire does not have a right of first offer place. |
| Forum Selection | The fourth amended and restated certificate of incorporation and third amended and restated bylaws of NeuroBo do not provide for a specific forum. | The Gemphire Bylaws provide that, unless Gemphire consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall generally be the sole and exclusive forum for (i) any derivative action or proceeding brought on behalf of the corporation, (ii) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of Gemphire to Gemphire or Gemphire Stockholders, (iii) any action asserting a claim against Gemphire or any director or officer or other employee of Gemphire arising pursuant to any provision of the DGCL, the Gemphire Certificate of Incorporation or the Gemphire Bylaws or (iv) any action asserting a claim governed by the internal affairs doctrine. This provision does not apply to claims arising under the Securities Act and the Exchange Act or any claim for which the federal courts have exclusive jurisdiction. |

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| | **Indemnification of Officers and Directors and Advancement of Expenses; Limitation on Personal Liability** | |
| Indemnification | The fourth amended and restated certificate of incorporation of NeuroBo provides that to the fullest extent permitted by applicable law, a director of NeuroBo shall not be personally liable to NeuroBo or its stockholders for monetary damages for breach of fiduciary duty as a director. The fourth amended and restated certificate of incorporation and third amended and restated bylaws of NeuroBo provide that NeuroBo shall have the power to indemnify its directors and officers to the fullest extent permitted by applicable law. | The Gemphire Certificate of Incorporation and Gemphire Bylaws provide that Gemphire shall indemnify its directors and officers to the fullest extent permitted by applicable law. Under the Gemphire Bylaws, Gemphire will not be required to indemnify any director or officer in connection with any proceeding initiated by such person unless the proceeding was authorized by the Gemphire Board, expressly required by law, or is provided for by the corporation. Under the Gemphire Bylaws, such rights shall not be exclusive of any other rights acquired by directors and officers, including by agreement. |
| Advancement of Expenses | The amended and restated bylaws of NeuroBo provide that expenses incurred by an officer or director in defending any civil, criminal, administrative or investigative action, suit or proceeding shall be paid by NeuroBo in advance of the final disposition of such action, suit or proceeding upon receipt of an undertaking by or on behalf of such director or officer to repay such amount if it shall ultimately be determined that he or she is not entitled to be indemnified by the corporation. | The Gemphire Bylaws provide that, to the fullest extent not prohibited by applicable law, Gemphire will pay the expenses incurred by any officer or director in defending any proceeding in advance of its final disposition, provided, however, that, to the extent required by law, such payment of expenses in advance of the final disposition of the proceeding will be made only upon receipt of an undertaking by the person to repay all amounts in advance if it should be ultimately determined that the person is not entitled to be indemnified under the Gemphire Bylaws or otherwise. |
| Registration Rights | The fourth amended and restated certificate of incorporation and third amended and restated bylaws of NeuroBo do not provide registration rights to holders of NeuroBo common stock or NeuroBo preferred stock. | See *"Description of Gemphire Capital Stock—Registration Rights"* for a description of existing registration rights. |

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| | **Dividends** | |
| Declaration and Payment of Dividends | The fourth amended and restated certificate of incorporation of NeuroBo provides that from and after the date of the issuance of any shares of Series A Preferred Stock or Series B Preferred Stock (as the case may be), dividends at the rate of 1.00% per annum shall accrue on the Series A Preferred Stock or Series B Preferred Stock (subject to appropriate adjustment in the event of any stock, dividend, stock split, combination or other similar recapitalization). Such dividends shall accrue from day to from day to day, whether or not declared, and shall be cumulative, provided however that such dividends shall be payable only when, as, and if declared by the NeuroBo Board, and are payable on a pari passu, pro rata basis among the holders of the Series A Preferred Stock and Series B Preferred Stock. | The Gemphire Bylaws provide that, subject to any restrictions contained in the DGCL or the Gemphire Certificate of Incorporation, the Gemphire Board may declare and pay dividends upon the shares of capital stock. Dividends may be paid in cash, in property, or in shares of capital stock. The Gemphire Board may set aside out of any funds of the corporation available for dividends reserves for any proper purposes, including equalizing dividends, repairing or maintaining corporate property and meeting contingencies, and may abolish any such reserve. |

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| | The fourth amended and restated certificate of incorporation of NeuroBo provides that (i) commencing on April 9, 2021 and on each anniversary of such date, the holders of a majority of the then-outstanding shares of Series A Preferred Stock have the right to cause NeuroBo to redeem the then-outstanding shares of Series A Preferred Stock, in whole or in part, at a redemption price per share equal to the original issue price of the Series A Preferred Stock, plus all declared but unpaid dividends thereon and a premium in an amount equal to six percent (6%) of the original issue price of the Series A Preferred Stock; and (ii) commencing on May 30, 2022 and on each anniversary of such date, the holders of a majority of the then-outstanding shares of Series B Preferred Stock have the right to cause NeuroBo to redeem the then-outstanding shares of Series B Preferred Stock, in whole or in part, at a redemption price per share equal to the original issue price of the Series B Preferred Stock, plus all declared but unpaid dividends thereon and a premium in an amount equal to six percent (6%) of the original issue price of the Series B Preferred Stock. | |

| Provision | NeuroBo (Pre-Merger) | Gemphire (Post-Merger) |
|---|---|---|
| | **Amendments to Certificate of Incorporation or Bylaws** | |
| General Provisions | NeuroBo may not amend, alter or repeal any provision of the fourth amended and restated certificate of incorporation or third amended and restated bylaws in a manner that adversely affects the powers, preferences or rights of the Series A Preferred Stock or Series B Preferred Stock without the written consent or affirmative vote of holders of a majority of the Series A Preferred Stock and Series B Preferred Stock, voting together as single class, on an as-converted to common stock basis. The holders of NeuroBo preferred stock also have other protective rights, as specified in "—*Conversion Rights and Protective Provisions*" above. | The Gemphire Certificate of Incorporation states that notwithstanding any other provisions of the Gemphire Certificate of Incorporation or any provision of law which might otherwise permit a lesser vote or no vote, but in addition to any affirmative vote of the holders of any particular class or series of the voting stock required by law or by the Gemphire Certificate of Incorporation, the affirmative vote of the holders of at least $66^{2}/_{3}$% of the voting power of all of the then-outstanding shares of the voting stock, voting together as a single class, is required to alter, amend or repeal V (relating to the management of Gemphire) and VI (relating to indemnification), or VII (relating to amendments).<br><br>With regard to the Gemphire Bylaws, the Gemphire Certificate of Incorporation states that the Gemphire Board will have the power to adopt, amend or repeal the Gemphire Bylaws. Additionally, the adoption, amendment or repeal of the Gemphire Bylaws by Gemphire Stockholders will require the affirmative vote of the holders of at least $66^{2}/_{3}$% of the votes that all the stockholders would be entitled to vote generally at an election of directors, in addition to any vote required by the Gemphire Certificate of Incorporation. |

## PRINCIPAL STOCKHOLDERS OF GEMPHIRE

Except where specifically noted, the following information and all of the information in this proxy statement/prospectus/information statement does not give effect to the Gemphire Reverse Stock Split. The following table sets forth certain information with respect to the beneficial ownership of Gemphire common stock as of September 30, 2019 (except where otherwise indicated) for:

- each person, or group of affiliated persons, known by Gemphire to beneficially own more than 5% of the outstanding shares of Gemphire common stock;
- each of Gemphire's named executive officers;
- each of Gemphire's directors as of September 30, 2019; and
- all of Gemphire's current executive officers and directors as a group.

The table lists applicable percentage ownership based on 14,872,411 shares of Gemphire common stock outstanding as of September 30, 2019 and does not give effect to any shares of Gemphire common stock to be issued in the merger.

Gemphire has determined beneficial ownership in accordance with the rules of the SEC. These rules generally attribute beneficial ownership of securities to persons who possess sole or shared voting power or investment power with respect to those securities. Unless otherwise indicated, the persons or entities identified in this table have sole voting and investment power with respect to all shares shown as beneficially owned by them, subject to applicable community property laws. In addition, the rules include shares of Gemphire common stock issuable pursuant to the exercise of stock options and warrants that are either immediately exercisable or exercisable within 60 days of September 30, 2019. These shares are deemed to be outstanding and beneficially owned by the person holding those options or warrants for the purpose of computing the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Except as otherwise noted below, the address for each person or entity listed in the table is c/o Gemphire Therapeutics Inc., P.O. Box 130235, Ann Arbor, Michigan 48113.

Except as contemplated by the merger, Gemphire does not know of any arrangements the operation of which may at a subsequent date result in a change in control of Gemphire.

| NAME AND ADDRESS OF BENEFICIAL OWNER | SHARES BENEFICIALLY OWNED NUMBER | PERCENT |
|---|---|---|
| **Greater than 5% stockholders** | | |
| Excel Ventures II GP, LLC(1) | 969,851 | 6.5 |
| Venrock Healthcare Capital Partners II, L.P.(2) | 1,269,590 | 8.5 |
| Mina Sooch(3) | 1,188,383 | 7.8 |
| **Directors and Named Executive Officers** | | |
| Charles L. Bisgaier, Ph.D.(4) | 1,594,237 | 10.6 |
| Andrew Sassine(5) | 258,716 | 1.7 |
| Seth Reno(6) | 313,460 | 2.1 |
| Steven Gullans, Ph.D.(7) | 736,250 | 4.8 |
| Pedro Lichtinger(8) | 174,365 | 1.2 |
| Kenneth Kousky(9) | 94,501 | * |
| Jeffrey Mathiesen(10) | 235,727 | 1.6 |
| Lee Golden, M.D.(11) | 172,792 | 1.1 |
| All current executive officers and directors as a group (6 persons) | 3,171,529 | 19.9 |

* Represents beneficial ownership of less than one percent.

(1) Represents (i) 930,252 shares of common stock beneficially owned by Excel Ventures II GP, LLC ("Excel") and certain of its affiliates and (ii) warrants to purchase 39,599 shares as reported on the Schedule 13G/A filed with the SEC on February 6, 2019. The address for Excel is 200 Clarendon Street, 17th floor, Boston, MA 02116.

(2) Represents 1,269,590 shares held by Venrock Healthcare Capital Partners II, L.P. ("Venrock") and certain of its affiliates as reported on form 13F-HR filed with the SEC on August 13, 2019. The address for Venrock is 7 Bryant Park, 23rd Floor, New York, NY 10018. Venrock and each of its affiliates reported on the Schedule 13G have shared voting power and investment power over these shares.

(3) Represents (a) 668,732 shares held by Ms. Sooch, (b) 455,220 shares underlying options to purchase Gemphire common stock that are exercisable within 60 days of September 30, 2019, (c) 39,431 shares of Gemphire common stock held by the Arvinder S. Sooch Trust dated September 20, 2006, of which Ms. Sooch's spouse is the trustee and (d) 25,000 shares of Gemphire common stock held in a grantor retained annuity trust. Ms. Sooch's beneficial ownership presented herein is based on Gemphire records as of May 2017.

(4) Represents (a) 1,348,914 shares held by Dr. Bisgaier, (b) 143,875 shares underlying options to purchase Gemphire common stock that are exercisable within 60 days of September 30, 2019, (c) 82,220 shares of Gemphire common stock held by The Charles L. Bisgaier Trust dated November 8, 2000, of which Dr. Bisgaier is the trustee, and (d) 19,228 shares of Gemphire common stock held by Bisgaier Family, LLC, of which Dr. Bisgaier is a manager.

(5) Represents (a) 151,264 shares held by Mr. Sassine, (b) 91,612 shares underlying options to purchase Gemphire common stock that are exercisable within 60 days of September 30,

2019 and (c) 15,840 shares underlying warrants to purchase Gemphire common stock that are exercisable within 60 days of September 30, 2019.

(6) Represents (a) 118,286 shares held by Mr. Reno and (b) 195,174 shares underlying options to purchase Gemphire common stock that are exercisable within 60 days of September 30, 2019.

(7) Represents (a) 300,000 shares held by Dr. Gullans and (b) 436,250 shares underlying options to purchase Gemphire common stock that are exercisable within 60 days of September 30, 2019.

(8) Represents (a) 74,833 shares held by Mr. Lichtinger, (b) 91,612 shares underlying options to purchase Gemphire common stock that are exercisable within 60 days of September 30, 2019 and (c) 7,920 shares underlying warrants to purchase common stock that are exercisable within 60 days of September 30, 2019.

(9) Represents (a) 26,935 shares held by Mr. Kousky, and (b) 67,566 shares underlying options to purchase Gemphire common stock exercisable within 60 days of September 30, 2019.

(10) Mr. Mathiesen's employment with Gemphire ended in September 2018. Represents (a) 14,134 shares and (b) 221,593 shares underlying options to purchase Gemphire common stock exercisable within 60 days of September 30, 2019. Such amounts are based on Mr. Mathiesen's Form 4 filings.

(11) Dr. Golden's employment with Gemphire ended in September 2018. Represents shares underlying options to purchase Gemphire common stock exercisable within 60 days of September 30, 2019. Such amounts are based on Dr. Golden's Form 4 filings.

## PRINCIPAL STOCKHOLDERS OF NEUROBO

The following table and the related notes present information on the beneficial ownership of NeuroBo's capital stock as of September 30, 2019 by:

- each director of NeuroBo;
- each named executive officer of NeuroBo;
- all of NeuroBo's current directors and executive officers as a group; and
- each stockholder known by NeuroBo to beneficially own more than five percent of its common stock on an as converted to common stock basis.

The percentage of ownership is based on 13,114,212 shares of NeuroBo common stock outstanding on September 30, 2019, assuming the conversion of all NeuroBo preferred stock into NeuroBo common stock and the conversion of all NeuroBo convertible notes into NeuroBo common stock in accordance with the Merger Agreement. Beneficial ownership is determined in accordance with the rules of the SEC and includes voting or investment power with respect to the securities. Shares of NeuroBo common stock that may be acquired by an individual or group within 60 days of September 30, 2019, pursuant to the exercise of options or warrants, are deemed to be outstanding for the purpose of computing the percentage ownership of such individual or group, but are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person shown in the table.

Except as indicated in the footnotes to this table, NeuroBo believes that the stockholders named in this table have sole voting and investment power with respect to all shares of NeuroBo's common stock shown to be beneficially owned by them, based on information provided to NeuroBo by such stockholders. Unless otherwise indicated, the address for each stockholder listed is: c/o NeuroBo Pharmaceuticals, Inc., 177 Huntington Avenue, Suite 1700, Boston, MA 02115.

| 5% Stockholders | Number of Shares | Approximate Percent Owned |
|---|---|---|
| Entities affiliated with E&Investment, Inc. | 5,900,000(1) | 45.0% |
| Dong-A ST Co., Ltd. | 2,520,000(2) | 19.2% |
| JK BioPharma Solutions, Inc. | 2,095,616(3) | 16.0% |
| Sun Dae Kang | 700,000(4) | 5.3% |

| Directors and Named Executive Officers | Number of Shares | Approximate Percent Owned |
|---|---|---|
| Na Yeon (Irene) Kim | 5,900,000(1) | 45.0% |
| Jeong Gyun Oh | 2,305,616(5) | 17.6% |
| Roy Freeman, M.D. | 1,273,904(6) | 9.7% |
| John L. Brooks, III | 75,000(7) | * |
| Mark Versavel, M.D., Ph.D., M.B.A. | 75,000(8) | * |
| Jeong Gu Kang, Ph.D. | — | — |
| All current executive officers and directors as a group (7 persons) | 9,629,520 | 72.6% |

* Represents beneficial ownership of less than 1% of the shares of NeuroBo common stock.

(1) Consists of 3,500,000 shares of NeuroBo common stock issuable upon the conversion of NeuroBo's Series A preferred stock held by The E&Healthcare Investment Fund II, 900,000 shares of NeuroBo common stock issuable upon the conversion of NeuroBo's Series B preferred stock held by The E&Healthcare Investment Fund No. 6, and 1,500,000 shares of NeuroBo common stock issuable upon the conversion of NeuroBo's Series B preferred stock held by The E&Healthcare

Investment Fund No. 7. Na Yeon (Irene) Kim, a member of the NeuroBo Board, is the Chief Executive Officer of E&Investment, Inc. E&Investment, Inc. is the sole general partner of The E&Healthcare Investment Fund II, The E&Healthcare Investment Fund No. 6 and The E&Healthcare Investment Fund No. 7, and thus has voting power over the shares held by The E&Healthcare Investment Fund II, The E&Healthcare Investment Fund No. 6 and The E&Healthcare Investment Fund No. 7. As the Chief Executive Officer of E&Investment, Inc., Ms. Kim may be deemed to have voting and investment control over the shares held by the entities affiliated with E&Investment, Inc. The address of the entities affiliated with E&Investment, Inc. is 16th Floor, Yeoksam I-Tower BID, 326, Teheran-ro, Gangnam-gu, Seoul, Republic of Korea.

(2) Consists of 2,520,000 shares of NeuroBo common stock held by Dong-A ST Co., Ltd., a publicly traded company formed under the laws of the Republic of Korea, which lists its securities on the Korea Exchange. The address of Dong-A ST Co., Ltd. is 64 Cheonho-daero, Dongdaemun-gu, Seoul 02587, Republic of Korea.

(3) Consists of 1,000,000 shares of NeuroBo common stock and 1,095,616 shares of NeuroBo common stock to be issued upon the conversion of the NeuroBo convertible notes (assuming the notes are converted on December 31, 2019) held by JK BioPharma Solutions, Inc. The address of JK BioPharma Solutions, Inc. is 1 Research Court, Suite 370, Rockville, MD 20850.

(4) Consists of 700,000 shares of NeuroBo common stock issuable upon the conversion of NeuroBo Series A Preferred Stock.

(5) Consists of 1,000,000 shares of NeuroBo common stock and 273,904 shares of NeuroBo common stock to be issued upon the conversion of the NeuroBo convertible notes held by JK BioPharma Solutions, Inc. as of September 30, 2019 (assuming the notes are converted on December 31, 2019) and 210,000 shares of NeuroBo common stock issuable upon the conversion of Series B Preferred Stock held by Mr. Oh's spouse, Eun Soo Kang. Mr. Oh is the President and Chief Executive Officer of JK BioPharma Solutions, Inc., and as such has voting and investment control over the shares held by JK BioPharma Solutions, Inc.

(6) Consists of 1,000,000 shares of NeuroBo common stock and 273,904 shares of NeuroBo common stock to be issued upon the conversion of the NeuroBo convertible notes held by Roy Freeman as of September 30, 2019 (assuming the notes are converted on December 31, 2019).

(7) Consists of options to purchase 75,000 shares of NeuroBo common stock exercisable within 60 days of September 30, 2019.

(8) Consists of options to purchase 75,000 shares of NeuroBo common stock exercisable within 60 days of September 30, 2019.

## PRINCIPAL STOCKHOLDERS OF COMBINED ORGANIZATION

Except where specifically noted, the following information and all of the information in this proxy statement/prospectus/information statement does not give effect to the Gemphire Reverse Stock Split. The following table and the related notes present certain information with respect to the beneficial ownership of the common stock of the combined organization upon consummation of the merger based on beneficial ownership of Gemphire common stock and NeuroBo common stock as of September 30, 2019, (assuming the Closing of the merger occurs on December 31, 2019) by:

- each person, or group of affiliated persons, expected by NeuroBo and Gemphire to become the beneficial owner of more than 5% of the common stock of the combined organization upon the consummation of the merger;
- each named executive officer of the combined organization;
- each director of the combined organization; and
- all of the combined organization's directors and executive officers as a group.

The following table assumes effectiveness of the Preferred Stock Conversion and Convertible Note Conversion, an Exchange Ratio of 29.2911 and that the Closing of the merger occurs on December 31, 2019. Immediately prior to the merger and after the Preferred Stock Conversion and Convertible Note Conversion, NeuroBo is expected to have 13,119,520 shares of common stock outstanding and Gemphire is expected to have 14,872,411 shares of common stock outstanding. Upon the Closing of the merger on the assumed date of December 31, 2019, the 13,119,520 shares of NeuroBo common stock would be converted into the right to receive an aggregate of 384,285,172 shares of Gemphire common stock such that there would be a total of 399,157,583 shares of common stock of the combined company outstanding upon the Closing of the merger.

Gemphire and NeuroBo have determined beneficial ownership in accordance with the rules of the SEC. These rules generally attribute beneficial ownership of securities to persons who possess sole or shared voting power or investment power with respect to those securities. Unless otherwise indicated, the persons or entities identified in this table have sole voting and investment power with respect to all shares shown as beneficially owned by them, subject to applicable community property laws. In addition, the rules include shares of common stock issuable pursuant to the exercise of stock options and warrants that are either immediately exercisable or exercisable within 60 days of September 30, 2019. These shares are deemed to be outstanding and beneficially owned by the person holding those options or warrants for the purpose of computing the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated, the address for each stockholder listed is: c/o NeuroBo Pharmaceuticals, Inc., 177 Huntington Avenue, Suite 1700, Boston, MA 02115.

| 5% Stockholders | Number of Shares | Approximate Percent Owned |
|---|---|---|
| Entities affiliated with E&Investment, Inc. | 172,817,490(1) | 43.3% |
| Dong-A ST Co., Ltd. | 73,813,572(2) | 18.5% |
| JK BioPharma Solutions, Inc. | 61,382,898(3) | 15.4% |
| Sun Dae Kang | 20,503,770(4) | 5.1% |

| Directors and Named Executive Officers | Number of Shares | Approximate Percent Owned |
|---|---|---|
| Na Yeon (Irene) Kim | 172,817,490(1) | 43.3% |
| Jeong Gyun Oh | 67,534,029(5) | 16.9% |
| Roy Freeman, M.D. | 37,314,049 | 9.3% |
| John L. Brooks, III | 2,182,187(6) | * |
| Mark Versavel, M.D., Ph.D., M.B.A. | 2,182,187(7) | * |
| Steven Gullans, Ph.D. | 300,000(8) | * |
| Jeong Gu Kang, Ph.D. | — | — |
| All current executive officers and directors as a group (8 persons) | 282,029,942 | 69.9% |

* Represents beneficial ownership of less than 1% of the shares of NeuroBo common stock.

(1) Consists of 102,518,850 shares of common stock of the combined organization held by The E&Healthcare Investment Fund II, 26,361,990 shares of common stock of the combined organization held by The E&Healthcare Investment Fund No. 6 and 43,936,650 shares of common stock of the combined organization held by The E&Healthcare Investment Fund No. 7. Na Yeon (Irene) Kim, a member of the NeuroBo Board, is the Chief Executive Officer of E&Investment, Inc. E&Investment, Inc. is the sole general partner of The E&Healthcare Investment Fund II, The E&Healthcare Investment Fund No. 6 and The E&Healthcare Investment Fund No. 7, and thus has voting power over the shares held by The E&Healthcare Investment Fund II, The E&Healthcare Investment Fund No. 6 and The E&Healthcare Investment Fund No. 7. As the Chief Executive Officer of E&Investment, Inc., Ms. Kim may be deemed to have voting and investment control over the shares held by the entities affiliated with E&Investment, Inc. The address of the entities affiliated with E&Investment, Inc. is 16th Floor, Yeoksam I-Tower BID, 326, Teheran-ro, Gangnam-gu, Seoul, Republic of Korea.

(2) Consists of 73,813,572 shares of common stock in the combined organization held by Dong-A ST Co., Ltd., a publicly traded company formed under the laws of the Republic of Korea, which lists its securities on the Korea Exchange. The address of Dong-A ST Co., Ltd. is 64 Cheonho-daero, Dongdaemun-gu, Seoul 02587, Republic of Korea.

(3) Consists of 61,382,898 shares of common stock of the combined organization held by JK BioPharma Solutions, Inc. The address of JK BioPharma Solutions, Inc. is 1 Research Court, Suite 370, Rockville, MD 20850.

(4) Consists of 20,503,770 shares of common stock of the combined organization.

(5) Consists of 61,382,898 shares of common stock of the combined organization held by JK BioPharma Solutions, Inc. and 6,151,131 shares of common stock of the combined organization held by Mr. Oh's spouse, Eun Soon Kang. Mr. Oh is the President and Chief Executive Officer of JK BioPharma Solutions Inc., and as such has voting and investment control over the shares held by JK BioPharma Solutions, Inc.

(6) Consists of options to purchase shares of common stock of the combined organization exercisable within 60 days of September 30, 2019.

(7) Consists of options to purchase shares of common stock of the combined organization exercisable within 60 days of September 30, 2019.

(8) Assuming a Gemphire Closing Price of $0.73 per share (the average closing trading price of the Gemphire common stock over the first five business days following the public announcement of the merger), all Gemphire Options, including those held by Dr. Gullans, will be terminated immediately prior to the Effective Time for no consideration pursuant to the Merger Agreement.

## LEGAL MATTERS

Honigman LLP, Kalamazoo, Michigan, will pass on the validity of the Gemphire common stock offered by this proxy statement/prospectus/information statement. The material U.S. federal income tax consequences of the merger will be passed upon for Gemphire by Honigman LLP, Detroit, Michigan, and for NeuroBo by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts.

## EXPERTS

The financial statements of Gemphire Therapeutics Inc. at December 31, 2018 and 2017 and for each of the three years in the period ended December 31, 2018, included in the Proxy Statement of Gemphire Therapeutics Inc., which is referred to and made part of this Prospectus and Registration Statement, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon (which contains an explanatory paragraph describing the conditions that raise substantial doubt about Gemphire's ability to continue as a going concern as described in Note 1 to the financial statements) appearing elsewhere herein, and are included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

The financial statements of NeuroBo Pharmaceuticals, Inc. and subsidiary as of December 31, 2017 and December 3l, 20l8 and for the period from inception (July 25, 2017) to December 3l, 2017 and for the year ended December 31, 2018 included in the Registration Statement of which this prospectus forms a part have been so included in reliance on the report (which contains an explanatory paragraph describing the conditions that raise substantial doubt about NeuroBo's ability to continue as a going concern as described in Note 1 to the financial statements) of BDO USA, LLP, an independent registered public accounting firm, appearing elsewhere in this Registration Statement, given on the authority of said firm as experts in auditing and accounting.

## WHERE YOU CAN FIND MORE INFORMATION

Gemphire files annual, quarterly and current reports and other information with the SEC. Gemphire's SEC filings are available to the public over the Internet at the SEC's website at http://www.sec.gov.

As of the date of this proxy statement/prospectus/information statement, Gemphire has filed a registration statement on Form S-4 to register with the SEC Gemphire common stock that Gemphire will issue to NeuroBo's stockholders in the merger. This proxy statement/prospectus/information statement is a part of that registration statement and constitutes a prospectus of Gemphire, as well as a proxy statement of Gemphire for its annual meeting and an information statement for the purpose of NeuroBo for its written consent.

Gemphire has supplied all information contained in this proxy statement/prospectus/information statement relating to Gemphire, and NeuroBo has supplied all information contained in this proxy statement/prospectus/information statement relating to NeuroBo.

If you would like to request documents from Gemphire or NeuroBo, please send a request in writing or by telephone to either Gemphire or NeuroBo at the following addresses:

Gemphire Therapeutics Inc.
P.O. Box 130235
Ann Arbor, Michigan 48113
Telephone: (734) 245-1700
Attn: Secretary

NeuroBo Pharmaceuticals, Inc.
177 Huntington Avenue ,Suite 1700
Boston, MA 02115
Telephone: (617) 313-7331
Attn: Secretary

If you are a Gemphire stockholder and would like additional copies, without charge, of this proxy statement/prospectus/information statement or if you have questions about the merger, including the procedures for voting your shares, you should contact Gemphire's proxy solicitor:

The Proxy Advisory Group, LLC
Telephone: 212-616-2180
Email: info@proxyadvisory.net

**TRADEMARK NOTICE**

"Gemphire", the Gemphire logo and "Advancing a class on top of statins", are registered trademarks of Gemphire in the United States, and "Gemphire Therapeutics Inc." is a registered trademark in the European Union. Other third-party logos and product/trade names are registered trademarks or trade names of their respective companies.

## OTHER MATTERS

### Stockholder Proposals

*Requirements for Stockholder Proposals to Be Considered for Inclusion in Gemphire's Proxy Materials.* Stockholders of Gemphire may submit proposals on matters appropriate for stockholder action at meetings of Gemphire Stockholders in accordance with Rule 14a-8 promulgated under the Exchange Act. For such proposals to be included in Gemphire's proxy materials relating to the 2020 Annual Meeting of Stockholders, all applicable requirements of Rule 14a-8 must be satisfied and such proposals must be received at Gemphire's executive offices no later than 120 calendar days before the anniversary of the date the proxy statement is released to shareholders in connection with the 2019 Annual Meeting of Stockholders. Gemphire has not yet set the date for its 2019 Annual Meeting of Stockholders, but if the Gemphire 2020 Annual Meeting of Stockholders is not held within 30 days from the anniversary of the 2019 Annual Meeting of Stockholders, then the deadline will be a reasonable time prior to the time Gemphire begins to print and send its proxy materials. All such proposals must comply with all applicable requirements of Rule 14a-8 and, prior to consummation of the merger, should be sent to the Gemphire Secretary, Gemphire Therapeutics Inc., P.O. Box 130235, Ann Arbor, Michigan 48113 by the close of business on the required deadline. After the consummation of the merger, such proposals should be sent to the combined company's Secretary at NeuroBo Pharmaceuticals Inc., 177 Huntington Avenue, Suite 1700, Boston, MA 02115, by the close of business on the required deadline.

*Requirements for Stockholder Proposals and Director Nominations at the 2020 Annual Meeting.* Pursuant to the Gemphire Bylaws, stockholders wishing to submit proposals or director nominations, except in the case of proposals made in accordance with Rule 14a-8, must, in addition to complying with applicable laws and regulations and the requirements of the Gemphire Bylaws, provide timely notice thereof in writing to the Gemphire Secretary. To be timely for the 2020 Annual Meeting of Stockholders, a stockholder must notify the Gemphire Corporate Secretary, in writing, not later than the close of business on the 90th day, nor earlier than the close of business on the 120th day, prior to the first anniversary of the 2019 Annual Meeting of Stockholders. Gemphire also advises stockholders to review the Gemphire Bylaws, which contain additional requirements about advance notice of stockholder proposals and director nominations. Gemphire has not yet set the date for its 2019 Annual Meeting of Stockholders, but if the Gemphire 2020 Annual Meeting of Stockholders is not held within 30 days from the one year anniversary of the 2019 Annual Meeting of Stockholders, then the deadline will be no earlier than the close of business on the one hundred twentieth (120th) day prior to such the 2020 Annual Meeting of Stockholders and not later than (i) the close of business on the later of the ninetieth (90th) day prior to the 2020 Annual Meeting of Stockholders or (ii) the tenth (10th) day following the day on which public announcement of the date of the 2020 Annual Meeting of Stockholders is first made. A stockholder's notice to the Gemphire Secretary must set forth the information required by the Gemphire Bylaws with respect to each director nominee or proposal the stockholder proposes to bring before the annual meeting. The chairman of the 2020 Annual Meeting of Stockholders may determine, if the facts warrant, that a matter has not been properly brought before the meeting and, therefore, may not be considered at the meeting. A copy of the Gemphire Bylaws may be obtained by writing to the Gemphire Secretary at the address listed above. In addition, the proxy solicited by the Gemphire Board for the 2020 Annual Meeting of Stockholders will confer discretionary voting authority with respect to (i) any proposal presented by a stockholder at that meeting for which Gemphire has not been provided with timely notice and (ii) any proposal made in accordance with the Gemphire Bylaws, if the proxy statement for the 2020 Annual Meeting of Stockholders briefly describes the matter and how management proxy holders intend to vote on it, if the stockholder does not comply with the requirements of Rule 14a-4(c)(2) promulgated under the Exchange Act.

**Communications with the Gemphire Board**

Stockholders and interested parties who wish to communicate with the Gemphire Board, non-management members of the Gemphire Board as a group, a committee of the Gemphire Board or a specific member of the Gemphire Board (including Gemphire's Chairman) may do so by letters addressed to the attention of Gemphire's Secretary, Gemphire Therapeutics Inc., P.O. Box 130235, Ann Arbor, Michigan 48113.

All communications by letter addressed to the attention of Gemphire's Secretary will be reviewed by the Secretary and provided to the members of the Board unless such communications are unsolicited items, sales materials and other routine items and items unrelated to the duties and responsibilities of the Gemphire Board.

**Available Information**

Gemphire will mail without charge, upon written request, a copy of its annual report on Form 10-K for the year ended December 31, 2018, including the financial statements and list of exhibits, and any exhibit specifically requested. Requests should be sent to:

**Gemphire Therapeutics Inc.**
P.O. Box 130235,
Ann Arbor, Michigan 48113
**Attn: Director of Finance**

The annual report on Form 10-K is also available at http://ir.gemphire.com under "Financial Information".

**"Householding"—Stockholders Sharing the Same Address**

The SEC has adopted rules that permit companies and intermediaries (such as brokers) to implement a delivery procedure called "householding." Under this procedure, multiple stockholders who reside at the same address may receive a single copy of Gemphire's proxy materials unless the affected stockholder has provided other instructions. This procedure reduces printing costs and postage fees, and helps protect the environment as well.

We expect that a number of brokers with account holders who are Gemphire Stockholders will be "householding" Gemphire's proxy materials. A single set of proxy materials will be delivered to multiple stockholders sharing an address unless contrary instructions have been received from one or more of the affected stockholders. Once you have received notice from your broker that it will be "householding" communications to your address, "householding" will continue until you are notified otherwise or until you revoke your consent. Gemphire Stockholders may revoke their consent at any time by contacting your broker.

Upon written or oral request, Gemphire will undertake to promptly deliver a separate copy of proxy materials to any stockholder at a shared address to which a single copy of any of those documents was delivered. To receive a separate copy of proxy materials now or in the future, you may write Gemphire's Director of Finance at P.O. Box 130235, Ann Arbor, Michigan 48113, Attn: Director of Finance, or arabourn@gemphire.com, or call (734) 245-1700.

Any stockholders who share the same address and currently receive multiple copies of Gemphire's proxy materials who wish to receive only one copy in the future can contact their bank, broker or other holder of record to request information about "householding" or Gemphire's Director of Finance at the address or telephone number listed above.

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**Report of Independent Registered Public Accounting Firm**

To the Board of Directors and Shareholders
Gemphire Therapeutics Inc.

**Opinion on the Financial Statements**

We have audited the accompanying balance sheets of Gemphire Therapeutics Inc. (the Company) as of December 31, 2018 and 2017, the related statements of comprehensive loss, changes in convertible preferred stock and stockholders' equity (deficit) and cash flows for each of the three years in the period ended December 31, 2018, and the related notes and the financial statement schedule listed in the Index at Item 15(a) (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

**The Company's Ability to Continue as a Going Concern**

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company has suffered recurring losses from operations, negative cash flows from operations, and has stated that substantial doubt exists about the Company's ability to continue as a going concern. Management's evaluation of the events and conditions and management's plans regarding these matters are also described in Note 1. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

**Basis for Opinion**

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2015.
Detroit, Michigan
March 15, 2019

**Gemphire Therapeutics Inc.**

**Balance Sheets**

**(in thousands, except share amounts and par value)**

| | December 31, 2018 | December 31, 2017 |
|---|---|---|
| **Assets** | | |
| Current assets: | | |
| Cash and cash equivalents | $ 18,954 | $ 18,473 |
| Prepaid expenses | 715 | 490 |
| Deferred offering costs | — | 21 |
| Other assets | 17 | 25 |
| Total current assets | 19,686 | 19,009 |
| Deposits | 8 | 8 |
| Total assets | $ 19,694 | $ 19,017 |
| **Liabilities and stockholders' equity** | | |
| Current liabilities: | | |
| Accounts payable | $ 2,044 | $ 4,025 |
| Accrued liabilities | 438 | 1,010 |
| Term loan—current portion | 9,437 | 1,355 |
| Total current liabilities | 11,919 | 6,390 |
| Long-term liabilities: | | |
| Term loan | — | 8,683 |
| Other liabilities | 1 | 3 |
| Total liabilities | 11,920 | 15,076 |
| Commitments and contingencies (Note 5) | | |
| Stockholders' equity: | | |
| Preferred stock, $0.001 par value; 10,000,000 shares authorized as of December 31, 2018 and 2017, no shares issued or outstanding as of December 31, 2018 and 2017. | — | — |
| Common stock, $0.001 par value; 100,000,000 shares authorized as of December 31, 2018 and 2017, 14,265,411 and 10,633,042 shares issued and outstanding at December 31, 2018 and 2017, respectively. | 22 | 18 |
| Additional paid—in capital | 91,863 | 64,397 |
| Accumulated deficit | (84,111) | (60,474) |
| Total stockholders' equity | 7,774 | 3,941 |
| Total liabilities and stockholders' equity | $ 19,694 | $ 19,017 |

See accompanying notes.

**Gemphire Therapeutics Inc.**

**Statements of Comprehensive Loss**

**(in thousands, except share and per share amounts)**

| | Year Ended December 31, | | |
|---|---|---|---|
| | 2018 | 2017 | 2016 |
| Operating expenses: | | | |
| General and administrative | $ 8,493 | $ 10,438 | $ 5,956 |
| Research and development | 14,312 | 22,686 | 8,740 |
| Total operating expenses | 22,805 | 33,124 | 14,696 |
| Loss from operations | (22,805) | (33,124) | (14,696) |
| Interest (expense) income | (654) | (286) | 114 |
| Other expense | (178) | (5) | (4) |
| Loss before income taxes | (23,637) | (33,415) | (14,586) |
| Provision (benefit) for income taxes | — | — | — |
| Net loss | (23,637) | (33,415) | (14,586) |
| Other comprehensive loss, net of tax | — | — | — |
| Comprehensive loss | $ (23,637) | $ (33,415) | $ (14,586) |
| Net loss | $ (23,637) | $ (33,415) | $ (14,586) |
| Adjustment to redemption value on Series A convertible preferred stock | — | — | (366) |
| Net loss attributable to common stockholders | $ (23,637) | $ (33,415) | $ (14,952) |
| Net loss per share: | | | |
| Basic and diluted (Note 10) | $ (1.71) | $ (3.23) | $ (2.57) |
| Number of shares used in per share calculations: | | | |
| Basic and diluted | 13,805,552 | 10,349,136 | 5,809,396 |

See accompanying notes.

**Gemphire Therapeutics Inc.**

**Statements of Changes in Convertible Preferred Stock and Stockholders' Equity (Deficit)**

**(in thousands, except share amounts)**

| | Series A Convertible Preferred Stock | | Common Stock | | Additional Paid-In Capital | Accumulated Deficit | Total Equity (Deficit) |
|---|---|---|---|---|---|---|---|
| | Shares | Amount | Shares | Amount | | | |
| Balance January 1, 2016 | 745,637 | $ 7,953 | 3,758,488 | $ 12 | $ — | $ (12,392) | $ (12,380) |
| Redemption value adjustment—Series A preferred stock | — | 366 | — | — | (285) | (81) | (366) |
| Conversion of Series A preferred stock to common stock | (745,637) | (8,319) | 827,205 | 1 | 8,318 | — | 8,319 |
| Separation of convertible note beneficial conversion feature upon contingency resolution | — | — | — | — | 372 | — | 372 |
| Conversion of convertible notes to common stock | — | — | 1,656,807 | 1 | 11,444 | — | 11,445 |
| Issuance of common stock from offering | — | — | 3,027,755 | 3 | 30,275 | — | 30,278 |
| Issuance costs of offering | — | — | — | — | (4,168) | — | (4,168) |
| Share-based compensation—employee | — | — | — | — | 1,498 | — | 1,498 |
| Share-based compensation—non-employee | — | — | — | — | 220 | — | 220 |
| Net loss | — | — | — | — | — | (14,586) | (14,586) |
| Balance at December 31, 2016 | — | $ — | 9,270,255 | $ 17 | $ 47,674 | $ (27,059) | $ 20,632 |
| Issuance of common stock from private placement | — | — | 1,324,256 | 1 | 8,978 | — | 8,979 |
| Issuance of detachable stock warrants in connection with private placement | — | — | — | — | 3,562 | — | 3,562 |
| Issuance costs of private placement | — | — | — | — | (1,287) | — | (1,287) |
| Exercise of stock options | — | — | 23,531 | — | 41 | — | 41 |
| Exercise of warrants | — | — | 15,000 | — | 156 | — | 156 |
| Share-based compensation—employee | — | — | — | — | 5,244 | — | 5,244 |
| Share-based compensation—non-employee | — | — | — | — | 29 | — | 29 |
| Net loss | — | — | — | — | — | (33,415) | (33,415) |
| Balance at December 31, 2017 | — | $ — | 10,633,042 | $ 18 | $ 64,397 | $ (60,474) | $ 3,941 |
| Issuance of common stock from follow-on public offering | — | — | 3,592,858 | 4 | 25,146 | — | 25,150 |
| Issuance costs of follow-on public offering | — | — | — | — | (2,091) | — | (2,091) |
| Warrant issuance | — | — | — | — | 196 | — | 196 |
| Exercise of stock options | — | — | 39,511 | — | 84 | — | 84 |
| Share-based compensation—employee | — | — | — | — | 4,128 | — | 4,128 |
| Share-based compensation—non-employee | — | — | — | — | 3 | — | 3 |
| Net loss | — | — | — | — | — | (23,637) | (23,637) |
| Balance at December 31, 2018 | — | $ — | 14,265,411 | $ 22 | $ 91,863 | $ (84,111) | $ 7,774 |

See accompanying notes.

**Gemphire Therapeutics Inc.**

**Statements of Cash Flows**

**(in thousands)**

| | For the Year Ended December 31, | | |
|---|---|---|---|
| | 2018 | 2017 | 2016 |
| **Operating activities** | | | |
| Net loss | $ (23,637) | $ (33,415) | $ (14,586) |
| Adjustments to reconcile net loss to net cash used in operating activities: | | | |
| Share-based compensation | 4,131 | 5,273 | 1,718 |
| Non-cash interest on convertible notes to related parties | — | — | 145 |
| Non-cash interest on convertible notes | — | — | 256 |
| Non-cash discount amortization on convertible notes to related parties | — | — | (17) |
| Non-cash discount amortization on term loan and convertible notes | 346 | 137 | (276) |
| Revaluation of premium conversion derivative | — | — | (850) |
| Non-cash interest upon conversion of convertible notes | — | — | 649 |
| Change in assets and liabilities: | | | |
| Prepaid expenses and other assets | (196) | 198 | (55) |
| Accounts payable | (1,981) | 2,007 | 1,477 |
| Accrued and other liabilities | (574) | (1,101) | 496 |
| Net cash used in operating activities | (21,911) | (26,901) | (11,043) |
| **Investing activities** | | | |
| Net cash provided by (used in) investing activities | — | — | — |
| **Financing activities** | | | |
| Proceeds from issuance of term loan and convertible notes | — | 10,000 | 2,651 |
| Proceeds from issuance of convertible notes to related parties | — | — | 2,500 |
| Issuance costs related to term loan and convertible notes | (10) | (89) | (10) |
| Repayment of principal | (741) | — | — |
| Exercise of stock options | 84 | 41 | — |
| Exercise of warrants | — | 156 | — |
| Proceeds from sale of common stock and warrants | 25,150 | 12,541 | 30,278 |
| Offering costs | (2,091) | (1,287) | (3,963) |
| Deferred offering costs | — | (21) | — |
| Net cash provided by financing activities | 22,392 | 21,341 | 31,456 |
| Net increase (decrease) in cash and cash equivalents | 481 | (5,560) | 20,413 |
| Cash and cash equivalents at beginning of period | 18,473 | 24,033 | 3,620 |
| Cash and cash equivalents at end of period | $ 18,954 | $ 18,473 | $ 24,033 |
| *Supplemental disclosure of cash flow information:* | | | |
| Cash paid for income taxes | $ — | $ — | $ — |
| Cash paid for interest | $ 488 | $ 291 | $ — |
| *Supplemental non-cash financing transactions:* | | | |
| Conversion of Series A preferred stock to common stock | $ — | $ — | $ 8,319 |
| Conversion of convertible notes to common stock | $ — | $ — | $ 11,445 |
| Issuance of warrants in connection with term loan | $ 196 | $ — | $ — |
| Redemption value change of Series A preferred stock | $ — | $ — | $ 366 |
| Bifurcation of premium conversion derivative related to convertible notes | $ — | $ — | $ 505 |
| Separation of beneficial conversion feature associated with convertible notes | $ — | $ — | $ 372 |
| Offering costs in other assets paid in prior year | $ — | $ — | $ 205 |
| Issuance costs in accounts payable and accrued liabilities | $ — | $ 10 | $ — |

See accompanying notes.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements**

**1. The Company and Basis of Presentation**

The Company, headquartered in Livonia, Michigan, is a clinical-stage biopharmaceutical entity focused on developing and commercializing therapies for the treatment of dyslipidemias as well as NAFLD/NASH with an initial focus on orphan indications including HoFH, FCS, and FPL. The Company's primary activities to date have been conducting research and development activities, planning and conducting clinical trials, performing business and financial planning, recruiting personnel and raising capital. The Company is subject to certain risks, which include the need to research, develop, and clinically test potentially therapeutic products, initially one product candidate gemcabene (also known as CI-1027); obtain regulatory approval for its products and commercialize them around the world, if approved; expand its management scientific staff; finance its operations; and find collaboration partners to further advance development and commercial efforts.

**Initial Public Offering**

On August 4, 2016, the Company's Registration Statement on Form S-1 (File No 333-210815) relating to its initial public offering (IPO) of its common stock was declared effective by the Securities and Exchange Commission (SEC). Pursuant to such Registration Statement, on August 10, 2016, the Company closed its IPO whereby 3,000,000 shares of its common stock were issued and sold at a public offering price of $10.00 per share. On September 8, 2016, the Company closed the sale of 27,755 shares of its common stock at the public offering price of $10.00 per share, representing a partial exercise of the underwriters' over-allotment option, following which, the IPO terminated. The Company received net proceeds of approximately $26.1 million after deducting underwriting discounts and commissions of $2.1 million and other offering expenses of $2.1 million.

Immediately prior to the IPO, the Company amended and restated its certificate of incorporation and bylaws to, among other things, change its authorized capital stock to consist of (i) 100,000,000 shares of common stock and (ii) 10,000,000 shares of undesignated preferred stock. Both the common stock and the preferred stock have a par value of $0.001 per share.

**Private Placement Offering**

On March 10, 2017, the Company entered into a securities purchase agreement for a private placement (the Private Placement) with a select group of accredited investors whereby, on March 15, 2017 the Company issued and sold 1,324,256 units at a price of $9.47 per unit for gross proceeds of approximately $12.5 million. Each unit consists of one share of the Company's common stock and a warrant to purchase 0.75 shares of common stock. The warrants have an exercise price of $10.40 per share and are exercisable for a period of five years from the date of issuance. On April 20, 2017, the registration statement on Form S-1 (File No 333-217296) for the resale of the shares of common stock issued in the Private Placement and the shares of common stock to be issued upon exercise of the warrants issued in the Private Placement was declared effective by the SEC.

**Follow-On Public Offering**

On February 12, 2018, the Company completed an underwritten public offering (the Follow-On Offering) of 3,142,858 shares of common stock at the public offering price of $7.00 per share. As part of such offering, the Company issued 450,000 additional shares of common stock representing partial exercise of the underwriters' overallotment option. The Company received net proceeds of

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**1. The Company and Basis of Presentation (Continued)**

approximately $23.1 million after deducting underwriting discounts and commissions and offering expenses.

**Reverse Stock Split**

In April 2016, the board of directors approved an amendment to the Company's certificate of incorporation to effect a 1-for-3.119 reverse stock split (the Reverse Stock Split) for all common and Series A preferred stock. The Reverse Stock Split became effective on April 27, 2016 upon the filing of the amendment to the certificate of incorporation. The authorized shares and par value of the common stock and Series A preferred stock were not adjusted as a result of the Reverse Stock Split. All issued and outstanding common and Series A preferred stock, options for common stock and per share amounts contained in the financial statements were retroactively adjusted to reflect the Reverse Stock Split for all periods presented.

**Going Concern**

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. The Company adopted Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2014-15, Presentation of Financial Statements—Going Concern (Subtopic 205-40) effective December 31, 2016, which requires the Company to make certain disclosures if it concludes that there is substantial doubt about the entity's ability to continue as a going concern within one year from the date of the issuance of these financial statements.

In the course of its activities, the Company has incurred losses and negative cash flows from operations since its inception. As of December 31, 2018, the Company had an accumulated deficit of $84.1 million. The Company expects to incur losses for the foreseeable future. The Company believes that its cash and cash equivalents of $19.0 million at December 31, 2018 are not sufficient to fund the Company's current operating plan for at least twelve months after the date the consolidated financial statements are issued. See "Contractual Obligations and Commitments—Term Loan" below regarding our prepayment of all outstanding indebtedness under the Term Loan subsequent to year end. We have no current source of revenue to sustain our present activities, and we do not expect to generate revenue until, and unless, the Food and Drug Administration (FDA) or other regulatory authorities approve gemcabene and we successfully commercialize gemcabene. Until such time, if ever, we expect to finance our cash needs through a combination of equity and debt financings as well as collaborations, strategic alliances and licensing arrangements. We do not have any committed external source of funds and there can be no assurance that the Company will be successful in acquiring additional funding at levels sufficient to fund its operations.

These conditions raise substantial doubt about the Company's ability to continue as a going concern. If the Company is unable to raise additional capital in sufficient amounts or on terms acceptable to it, the Company may have to significantly reduce its operations or delay, scale back or discontinue the development of gemcabene. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**2. Summary of Significant Accounting Policies**

**Use of Estimates**

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.

**Cash and Cash Equivalents**

The Company considers all highly liquid investments with an original maturity of 90 days or less at the time of deposit to be cash equivalents. The Company invests excess cash in readily available checking and savings accounts and highly liquid investments in money market accounts.

**Fair Value of Financial Instruments**

The Company's financial instruments include principally cash and cash equivalents, other current assets, accounts payable, accrued liabilities and debt. The carrying amounts for these financial instruments reported in the balance sheets approximate their fair values. See Note 11—Fair Value Measurements, for further discussion of fair value.

**General and Administrative Expenses**

General and administrative expenses consist primarily of personnel-related costs, including salaries and share-based compensation costs, for personnel in functions not directly associated with research and development activities. Other significant costs include legal fees related to intellectual property and corporate matters and professional fees for accounting and other services.

**Research and Development Expenses**

Research and development expenses consist of costs incurred in performing research and development activities, including compensation for research and development employees, costs associated with preclinical studies and trials, regulatory activities, manufacturing activities to support clinical activities, license fees, non-legal patent costs, fees paid to external service providers that conduct certain research and development, clinical costs and an allocation of overhead expenses. Research and development costs are expensed as incurred.

**Acquired In-Process Research and Development Expenses**

The Company includes costs to acquire or in-license product candidates in acquired in-process research and development expenses. The Company has acquired the right to develop and commercialize its product candidate gemcabene. These costs are immediately expensed provided that the payments do not also represent processes or activities that would constitute a "business" as defined under GAAP or provided that the product candidate has not achieved regulatory approval for marketing and absent obtaining such approval, has no alternative future use. Royalties owed on future sales of any licensed product will be expensed in the period the related revenues are recognized.

**Income Taxes**

The Company utilizes the liability method of accounting for income taxes as required by Accounting Standards Codification (ASC) 740, *Income Taxes*. Under this method, deferred tax assets

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**2. Summary of Significant Accounting Policies (Continued)**

and liabilities are determined based on differences between financial reporting and the tax basis of assets and liabilities and are measured using enacted tax rates and laws that will be in effect when the differences are expected to reverse. Currently, there is no provision for income taxes, as the Company has incurred operating losses to date, and a full valuation allowance has been provided on the net deferred tax assets.

**Share-Based Compensation**

The Company accounts for share-based compensation in accordance with the provisions of ASC 718, *Compensation—Stock Compensation* (ASC 718). Accordingly, compensation costs related to equity instruments granted are recognized at the grant-date fair value. The Company records forfeitures when they occur. Share-based compensation arrangements to non-employees are accounted for in accordance with the applicable provisions of ASC 718 and ASC 505, *Equity*, using a fair value approach. The compensation costs of these arrangements are subject to re-measurement as the equity instruments vest and are recognized as expense over the related service period (typically the vesting period of the awards).

**Common Stock Valuation**

Due to the absence of an active market for the Company's common stock prior to the close of the IPO, the Company utilized methodologies in accordance with the framework of the American Institute of Certified Public Accountants' Technical Practice Aid, *Valuation of Privately-Held Company Equity Securities Issued as Compensation*, to estimate the fair value of its common stock. The valuation methodology included estimates and assumptions that required the Company's judgment. These estimates and assumptions included a number of objective and subjective factors, including external market conditions affecting the biopharmaceutical industry sector, and the likelihood of achieving a liquidity event, such as an initial public offering or sale. Significant changes to the key assumptions used in the valuations could have resulted in different fair values of common stock at each valuation date.

**Convertible Preferred Stock**

On March 31, 2015, the Company issued 745,637 shares of Series A convertible preferred stock (the Series A preferred stock). On August 10, 2016, immediately prior to the closing of the IPO, the Company's Series A preferred stock, together with accrued dividends thereon, converted into 827,205 shares of common stock. The Series A preferred stock prior to conversion was classified outside of permanent equity, in mezzanine equity, on the Company's balance sheet. The Company initially records preferred stock that may be redeemed at the option of the holder, or based on the occurrence of events outside of the Company's control, at the value of the proceeds received. Subsequently, if it is probable that the preferred stock will become redeemable, the Company recognizes changes in the redemption value immediately as they occur and adjusts the carrying amount of the instrument to equal the redemption value at the end of each reporting period. If it is not probable that the preferred stock will become redeemable, the Company does not adjust the carrying value. In the absence of retained earnings, these charges are recorded against additional paid-in-capital, if any, and then to accumulated deficit. As a result of their conversion to common stock on August 10, 2016 as described above, no shares of Series A preferred stock were outstanding as of December 31, 2018 and 2017.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**2. Summary of Significant Accounting Policies (Continued)**

**Segment Information**

Operating segments are components of an enterprise for which separate financial information is available and is evaluated regularly by the Company's chief operating decision maker in deciding how to allocate resources and assessing performance. The Company's chief operating decision maker is its Chief Executive Officer. The Company's Chief Executive Officer views the Company's operations and manages its business in one operating segment, which is the business of development and commercialization of therapeutics for the treatment of dyslipidemia, a serious medical condition that increases the risk of life threatening cardiovascular disease and NAFLD/NASH. Accordingly, the Company has a single reporting segment.

**Jumpstart Our Business Startups Act Accounting Election**

As an emerging growth company under the Jumpstart Our Business Startups Act (JOBS Act), the Company is eligible to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies. The Company has irrevocably elected not to avail itself of this exemption and, therefore, will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

**Recent Accounting Pronouncements**

***Recently Adopted Accounting Pronouncements***

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers (Topic 606)*, which supersedes the revenue recognition requirements in FASB ASC 605. The new guidance primarily states that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods and services. In January 2017 and September 2017, the FASB issued several amendments to ASU 2014-09, including updates stemming from SEC Accounting Staff Announcement in July 2017. The amendments and updates included clarification on accounting for principal versus agent considerations (i.e., reporting gross versus net), licenses of intellectual property and identification of performance obligations. These amendments and updates do not change the core principle of the standard but provide clarity and implementation guidance. The Company has adopted this standard on January 1, 2018 and selected the modified retrospective transition method. The Company modified its accounting policies to reflect the requirements of this standard; however, the planned adoption will not affect the Company's financial statements and related disclosures for these periods or future periods until the Company generates revenues.

In November 2016, the FASB issued ASU No. 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash*. The objective of this ASU is to eliminate the diversity in practice related to the classification of restricted cash or restricted cash equivalents in the statement of cash flows. For public business entities, this ASU is effective for annual and interim reporting periods beginning after December 15, 2017, with early adoption permitted. The amendments in this update should be applied retrospectively to all periods presented. The Company adopted this standard on January 1, 2018 and it did not have a material impact on the Company's financial statements.

In May 2017, the FASB issued ASU 2017-09, *Compensation—Stock Compensation (Topic 718): Scope of Modification Accounting* (ASU 2016-09), which provides guidance about which changes to the

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**2. Summary of Significant Accounting Policies (Continued)**

terms or conditions of a share-based payment awards require an entity to apply modification accounting in Topic 718. This pronouncement is effective for annual reporting periods beginning after December 15, 2017, with early adoption permitted. The Company has adopted this standard on January 1, 2018 and it did not have a material impact on the Company's financial statements.

In March 2018, the FASB issued ASU 2018-05, *Income Taxes (Topic 740)*, that codified the SEC Staff Accounting Bulletin 118 (SAB 118) issued on December 22, 2017, which provides guidance on accounting for the tax effects of the Tax Cuts and Jobs Act (the TCJA). SAB 118 provides a measurement period that should not extend beyond one year from the enactment date for companies to complete the accounting under ASC 740. In accordance with SAB 118, a company must reflect the income tax effects of those aspects of the TCJA for which the accounting under ASC 740 is complete. To the extent that a company's accounting for certain income tax effects of the TCJA is incomplete, but for which they are able to determine a reasonable estimate, it must record a provisional amount in the financial statements. Provisional treatment is proper in light of anticipated additional guidance from various taxing authorities, the SEC, the FASB, and even the Joint Committee on Taxation. If a company cannot determine a provisional amount to be included in the financial statements, it should continue to apply ASC 740 on the basis of the provisions of the tax laws that were in effect immediately before the enactment of the TCJA. The Company has applied this guidance to its financial statements and it did not have an impact on the Company's financial statements.

***Recent Accounting Pronouncements Not Yet Adopted***

In January 2016, the FASB issued ASU No. 2016-01, *Financial Instruments—Overall: Recognition and Measurement of Financial Assets and Financial Liabilities.* The guidance affects the accounting for equity investments, financial liabilities under the fair value option and the presentation and disclosure requirements of financial instruments. The guidance is effective in the first quarter of fiscal 2019. Early adoption is permitted for the accounting guidance on financial liabilities under the fair value option. The Company is currently evaluating the impact of the new guidance on its financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)* and subsequently amended the guidance relating largely to transition considerations under the standard in January 2017 and July 2018. The objective of this update is to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and disclosing key information about leasing arrangements. This ASU is effective for fiscal years beginning after December 15, 2018, including interim periods within those annual periods. The Company plans to adopt the standard on January 1, 2019, and will apply the modified retrospective approach to each lease in existence at the adoption date. As such, the Company would not restate comparative periods and would recognize any cumulative adjustment to retained earnings on the date of the adoption. The Company plans to elect the package of practical expedients provided under the standard. The Company is in the process of completing an impact analysis over the application of the standard as of the planned adoption date. The Company expects to recognize a range of approximately $0.1 million to $0.2 million of lease assets and liabilities on the balance sheet as of January 1, 2019. The new standard is not expected to have a material impact on the Company's statements of comprehensive loss or statements of cash flows. The finalization of our assessment may result in significant changes to our estimates.

In July 2017, the FASB issued ASU No. 2017-11, *Earnings Per Share, Distinguishing Liabilities from Equity and Derivatives and Hedging*, which changes the accounting and earnings per share for certain

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**2. Summary of Significant Accounting Policies (Continued)**

instruments with down round features. The amendments in this ASU should be applied using a cumulative-effect adjustment as of the beginning of the fiscal year or retrospective adjustment to each period presented and is effective for annual periods beginning after December 15, 2018, and interim periods within those periods. The Company is currently evaluating the requirements of this new guidance and has not yet determined its impact on the Company's financial statements.

In June 2018, the FASB issued ASU 2018-07, *Compensation—Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting (ASU 2018-07)*, which expands the scope of Topic 718 to include share-based payment transactions for acquiring goods and services from nonemployees. An entity should generally apply the requirements of Topic 718 to nonemployee awards except in circumstances where there is specific guidance on inputs to an option pricing model and the attribution of cost. ASU 2018-07 specifies that Topic 718 applies to all share-based payment transactions in which a grantor acquires goods or services to be used or consumed in a grantor's own operations by issuing share-based payment awards. The guidance also clarifies that Topic 718 does not apply to share-based payments used to effectively provide (1) financing to the issuer or (2) awards granted in conjunction with selling goods or services to customers as part of a contract accounted for under Topic 606. This guidance is effective for annual reporting periods beginning after December 15, 2018, with early adoption permitted, but no earlier than an entity's adoption date of Topic 606. The Company is currently evaluating the impact of the new guidance on its financial statements.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement (ASU 2018-13).* The new guidance modifies the disclosure requirements in Topic 820 as follows:

- Removals: the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy; the policy for timing of transfers between levels; and the valuation processes for Level 3 fair value measurements.

- Modifications: for investments in certain entities that calculate net asset value, an entity is required to disclose the timing of liquidation of an investee's assets and the date when restrictions from redemption might lapse only if the investee has communicated the timing to the entity or announced the timing publicly; and the amendments clarify that the measurement uncertainty disclosure is to communicate information about the uncertainty in measurement as of the reporting date.

- Additions: the changes in unrealized gains and losses for the period included in other comprehensive income for recurring Level 3 fair value measurements held at the end of the reporting period; and the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements.

This guidance is effective for all entities for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. The amendments on changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements, and the narrative description of measurement uncertainty should all be applied prospectively for only the most recent interim or annual period presented in the initial year of adoption. All other amendments should be applied retrospectively to all periods presented upon their effective date. Early adoption is permitted. An entity is permitted to early adopt any removed or modified disclosures upon issuance of ASU 2018-13 and delay adoption of the additional disclosures until their effective date. The Company is currently evaluating the impact of the new guidance on its financial statements.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**3. Accrued Liabilities**

Accrued liabilities consist of the following (in thousands):

| | As of December 31, | |
|---|---|---|
| | 2018 | 2017 |
| Accrued compensation and other payroll liabilities | $ 137 | $ 306 |
| Legal costs | 106 | 91 |
| Accrued interest | 43 | 38 |
| Other research and development expenses | 135 | 522 |
| Other general and administrative expenses | 17 | 53 |
| Total | $ 438 | $ 1,010 |

On September 18, 2018, the Company's Board of Directors approved a workforce reduction involving 5 employees (or 33% of the workforce at that time) to lower costs and conserve cash resources in light of the previously announced request by the FDA for additional pre-clinical data. $0.1 million of unpaid severance costs related to the workforce reduction remained in accrued liabilities as of December 31, 2018 and is included in accrued compensation and other payroll liabilities.

**4. Debt**

***Term Loan***

On January 25, 2019, the Company agreed to prepay in full all outstanding indebtedness under the Loan and Security Agreement (the Original Loan Agreement) with Silicon Valley Bank (SVB) dated July 24, 2017 (the "Initial Effective Date"), as amended by the First Amendment, dated July 31, 2018 (the First Amendment and, the Original Loan Agreement, as amended by the First Amendment to Loan and Security Agreement, the Loan Agreement), which prepayment was effective January 28, 2019. Upon payoff, any unfunded commitments to make credit extensions or financial accommodations to the Company terminated, and all security interests and other liens granted to or held by SVB as security for the obligations were terminated and automatically released, except those that were specified as surviving termination (see Note 16—*Subsequent Events*). This note describes the terms of the Loan Agreement in effect on December 31, 2018 prior to the prepayment.

The Loan Agreement established a term loan facility (the Term Loan) in the aggregate principal amount of up to $15,000,000 to be funded in up to three tranches. Of such amount, $10,000,000 was funded on the Initial Effective Date. A third tranche of $5,000,000 was available through November 30, 2018 conditioned on the occurrence of certain events and was not drawn by the Company. Under the Loan Agreement, if a Pre-Clinical Event did not occur on or prior to September 30, 2019 or, if at any time prior to a Pre-Clinical Event, the Company's unrestricted cash balance at SVB was less than $18,000,000, the Company was required to either (i) provide cash security and maintain a cash balance in a restricted account at SVB in an amount not less than 100% of the amounts owed by the Company to SVB or (ii) prepay the Term Loan, including certain fees, in its entirety. All amounts advanced under the Term Loan would have matured on February 1, 2021.

In connection with the First Amendment, the Company issued a warrant to SVB (the Warrant) to purchase 36,000 shares of the Company's common stock at an exercise price of $7.47 per share on July 31, 2018. The Warrant is immediately exercisable and has a term of ten years. The exercise price

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**4. Debt (Continued)**

and number and type of shares underlying the Warrant are subject to adjustment upon specified events, including any stock dividends and splits, reverse stock split, recapitalization, reorganization or similar transaction, as described therein. The Warrant contains a "cashless exercise" feature that allows SVB to exercise the Warrant without a cash payment to the Company, on a net issuance basis, based upon the fair market value of the Company's common stock at the time of exercise, upon the terms set forth therein. The Warrant was deemed to be a free-standing instrument and was accounted for as equity given that there were no variable terms. The Company recorded $0.2 million to additional paid-in capital upon issuance with an offset to a discount to the Term Loan. A Black-Scholes pricing model was used to estimate the aggregate fair value of the Warrant on the issuance date. Input assumptions used were as follows: risk-free interest rate of 2.96 percent; expected volatility of 66 percent; expected life of 10 years; and expected dividend yield of 0 percent. The discount to the Term Loan associated with the Warrant is being amortized as interest expense over the term of the Loan Agreement and amounted to $33,000 for the year ended December 31, 2018.

As of the date of payment on January 28, 2019, the Company had approximately $8.9 million in outstanding borrowings and approximately $1.0 million in outstanding interest and fees under the Loan Agreement, including the final payment fee equal to 10% of the original aggregate principal amount of the Term Loan funded by SVB and drawn by the Company, which were repaid in full at the time of payment. The obligations, liabilities, covenants, and terms that are expressly specified in the Loan Agreement and any other related loan and collateral security documents issued by the Company to SVB in connection with the transaction evidenced by the Loan Agreement as surviving termination shall continue to survive notwithstanding the payment, including without limitation, the Company's indemnity obligations and the Company's obligation to pay to SVB a success fee of 3.5% of the funded principal amount of the Term Loan in the event any of the following occur on or before 5:00 PM, Eastern time, on July 24, 2024: (a) the Company receives FDA approval for any new drug application for gemcabene, (b) a sale or other transfer of all or substantially all of the assets of the Company occurs, (c) a merger or consolidation of the Company with or into another person or entity occurs where the holders of the Company's outstanding voting equity securities immediately prior to such merger or consolidation hold less than a majority of the issued and outstanding voting equity securities of the successor immediately following such transaction or (d) any sale by the holders of the Company's outstanding voting equity securities where such holders do not continue to hold at least a majority of the Company's issued and outstanding voting equity securities immediately following the consummation of such transaction. No event requiring payment of the success fee has occurred through the issuance date of these audited financial statements. Lastly, the Warrant to purchase 36,000 shares (subject to adjustment) of the Company's common stock dated as of July 31, 2018 between the Company and SVB will remain outstanding and exercisable in accordance with its terms.

In connection with the First Amendment, the Company was charged $10,000 by SVB and the fee was recorded as a discount to the Term Loan; the discount is being amortized as interest expense over the term of the Loan Agreement and amounted to $2,000 for the year ended December 31, 2018. In addition, the Company incurred $20,000 in third-party legal fees which were recorded to general and administrative expense in the accompanying statements of comprehensive loss during the year ended December 31, 2018.

The Company was in compliance with the Loan Agreement covenants as of December 31, 2018 and through the repayment of the Term Loan on January 28, 2019.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**4. Debt (Continued)**

Interest accrued on the unpaid principal balance at a floating per annum rate equal to the prime rate, except that, following an event of default, interest would have accrued at a rate up to 5% above the rate that is otherwise applicable. The prime rate in effect for the year ended December 31, 2018 ranged from 4.5% to 5.5% and the prime rate in effect for the year ended December 31, 2017 ranged from 4.25% to 4.5%. Lastly, debt issue costs that were incurred upon the July 2017 issuance of the Term Loan in the amount of $0.1 million were recorded as a discount to the Term Loan and were amortized ratably to interest expense over the term of the loan.

The Company recorded in aggregate $0.5 million and $0.3 million interest expense related to the Term Loan for the years ended December 31, 2018 and 2017, respectively.

As of December 31, 2018, minimum aggregate future payments under the Term Loan were as follows (in thousands) prior to repayment in January 2019:

| | December 31, |
|---|---|
| 2019 | $ 4,826 |
| 2020 | 4,579 |
| 2021 | 1,370 |
| Total minimum payments | 10,775 |
| Amount representing interest and discounts | (1,338) |
| Present value of minimum payments | 9,437 |
| Current portion | (9,437) |
| Long-term portion | $ — |

Future minimum interest payments under the Term Loan reflect the 5.5% per annum rate in effect at December 31, 2018 and on the date of repayment in January 2019. Given the intent of the Company to pay-off the Term Loan in January 2019 as of the December 31, 2018 balance sheet date, the Company classified the otherwise long-term portion of the Term Loan obligation as a current liability consistent with ASC 210 and other related accounting guidance. See Note 16—*Subsequent Events*.

***Interim Notes***

On July 31, 2015, the Company entered into a convertible interim note financing (collectively with the notes issued in December 2015, February 2016 and April 2016, the Interim Notes), pursuant to which certain investors agreed to loan the Company approximately $2.8 million. On August 10, 2016, immediately prior to the closing of the IPO, the Company's Interim Notes, together with accrued interest thereon, converted into 1,656,807 shares of common stock.

The Interim Notes accrued interest at a rate of 8% per annum, compounded annually, and would automatically convert into shares issued to investors in the Company's next equity financing round that results in gross proceeds of at least $5.0 million (a Qualified Financing). The conversion would be equal to unpaid principal at 115% plus any unpaid accrued interest. The investors would be paid out principal at 200% if a change of control occurred before the next financing round. In the event that a Qualified Financing, change of control, or an IPO did not occur before July 31, 2016, the parties would then negotiate a price for conversion into a new round of stock.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**4. Debt (Continued)**

In December 2015, the Company amended the Interim Notes and certain investors agreed to loan the Company an additional $2.7 million for a revised financing total of $5.5 million. The Interim Notes continued to accrue interest at an 8% rate per annum compounded annually, but were amended to automatically convert into shares of the same class of the Company's next convertible preferred stock financing round (the Preferred Stock Financing). The conversion into shares issued in the Preferred Stock Financing would be equal to unpaid principal at 115% plus unpaid accrued interest. In the event that either a change of control occurs or the Company completes a public transaction which results in the Company's stockholders holding securities listed on a national securities exchange, including an IPO, before the Preferred Stock Financing, the Interim Notes, as amended, would automatically convert into shares of the Company's common stock at a conversion price of $6.70585 per share (which represents the original issue price of the Series A preferred stock) based on 100% of outstanding principal and unpaid accrued interest. Lastly, if a Preferred Stock Financing, change of control, or public transaction did not occur before December 31, 2016, the parties agreed to then negotiate a conversion price into a new round of stock.

In February 2016, certain investors agreed to loan the Company an additional $0.2 million for a revised financing total of $5.6 million. The Interim Notes continued to accrue interest at an 8% rate per annum compounded annually, but were amended to automatically convert into shares of the same class of the Company's next Preferred Stock Financing. The conversion into shares issued in the Preferred Stock Financing would be equal to unpaid principal at 115% plus unpaid accrued interest. In the event that either a change of control occurs or the Company completes a public transaction which results in the Company's stockholders holding securities listed on a national securities exchange, including an IPO, before the Preferred Stock Financing, the Interim Notes, as amended, would automatically convert into shares of the Company's common stock at a conversion price of $6.70585 per share (which represents the original issue price of the Series A preferred stock as adjusted for the Reverse Stock Split) based on 100% of outstanding principal and unpaid accrued interest. Lastly, if a Preferred Stock Financing, change of control, or public transaction did not occur before December 31, 2016, the parties agreed to then negotiate a conversion price into a new round of stock.

In April 2016, the Company amended the Interim Notes and certain investors agreed to loan the Company an additional $5.0 million for a revised financing total, including Interim Notes previously issued, of $10.6 million. The Interim Notes continued to accrue interest at an 8% rate per annum compounded annually, but were amended so that 125% of the unpaid principal and accrued interest, would automatically convert into shares of the same class of the Company's next convertible preferred stock financing round of at least $5.0 million (the Qualified Financing). In the event that either a change of control occurs or the Company completes a public transaction which results in the Company's stockholders holding securities listed on a national securities exchange, including an IPO, before the Qualified Financing, 100% of outstanding principal and unpaid accrued interest on the Interim Notes, as amended, would automatically convert into shares of the Company's common stock at a conversion price of $6.70585 per share, as adjusted for the Reverse Stock Split. Lastly, if a Qualified Financing, change of control, or public transaction did not occur, the Interim Notes would become payable on demand any time after December 31, 2016. The Company incurred issuance costs related to the April 2016 financing in the amount of $10,000. The Interim Notes were discounted for the issuance costs, and the discount was amortized to interest expense over their remaining term using the straight-line method.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**4. Debt (Continued)**

On August 10, 2016, immediately prior to the closing of the IPO, the Company's Interim Notes, together with accrued interest thereon, converted into 1,656,807 shares of common stock. At the time of their issuance, the Interim Notes contained a conversion premium with regard to the conversion into shares at the time of the next Qualified Financing. The Company determined that the redemption feature under the Interim Notes qualified as an embedded derivative and was separated from its debt host. The bifurcation of the embedded derivative from its debt host resulted in a discount to the Interim Notes. The discount was amortized to interest expense over the term of the Interim Notes using the straight-line method. The embedded derivative was accounted for separately on a fair market value basis. The Company recorded the fair value changes of the premium conversion derivative associated with the Interim Notes to interest income (expense) that amounted to $0.2 million for the year ended December 31, 2016. As a result of the conversion of the Interim Notes, together with accrued interest thereon, into common stock immediately prior to the closing of the IPO on August 10, 2016, there were no Interim Notes or premium conversion derivatives outstanding as of December 31, 2018, 2017 or 2016.

**5. Commitments and Contingencies**

***Pfizer License Agreement***

In April 2011, the Company and Pfizer Inc. (Pfizer) entered into an exclusive license agreement (the Pfizer Agreement) for the clinical product candidate gemcabene. In exchange for this worldwide exclusive right and license to certain patent rights to make, use, sell, offer for sale and import the clinical product gemcabene, the Company agreed to certain milestone and royalty payments on future sales (See Note 6—*License Agreement)*. As of December 31, 2018, there was sufficient uncertainty with regard to both the outcome of the clinical trials and the ability to obtain sufficient funding to support any of the cash milestone payments under the license agreement, and as such, no liabilities were recorded related to the license agreement.

***Series A Preferred Stock Dividends***

Holders of the Series A preferred stock were entitled to cumulative accruing dividends at a simple rate of 8% per year on the original issue price of the preferred stock of $6.70585 per share, as adjusted for the Reverse Stock Split. The dividends effectively accrued daily on each share of preferred stock. The dividends were payable upon the earliest to occur of (1) the date determined by the Board, (2) the liquidation of the Company (including a deemed liquidation event) or (3) the conversion or redemption of at least a majority of the outstanding shares of Series A preferred stock. If the board reasonably believed that the Company was not legally able to pay the dividends in cash at the payment date, or if elected by the majority of the Series A preferred stockholders or if issued in connection with an IPO, the dividends were to be paid in shares of common stock at the conversion price for the Series A preferred stock in effect at that time, which was the original issue price of the Series A preferred stock as adjusted from time to time for any stock dividends, combinations, splits or recapitalizations. Since the dividends were payable upon a contingent event, the Company did not record them in the accompanying financial statements while outstanding. On August 10, 2016, immediately prior to the closing of the IPO, the Company's Series A preferred stock, together with accrued dividends thereon, converted into 827,205 shares of common stock, and as such, there were no cumulative unpaid dividends for the Series A preferred stock as of December 31, 2018 and 2017.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**5. Commitments and Contingencies (Continued)**

***Other Agreements***

Both cancellable and non-cancellable facility agreements were in place that provided for fixed monthly rent for the years ended December 31, 2018, 2017 and 2016. The total rent expense was $0.1 million, $0.1 million and $58,000 for the years ended December 31, 2018, 2017 and 2016, respectively. In May 2016, the Company entered into a new lease agreement for its headquarters location, commencing in August 2016. The initial term of the agreement is 3 years with an initial monthly base rent of approximately $8,400 and increasing to approximately $8,900 during the last year of the lease term. In conjunction with entering into the new lease agreement, the Company cancelled its original Northville, Michigan lease agreement, as amended, effective August 31, 2016 and renegotiated a new cancellable lease agreement for limited use of office space in the Northville location that expired in September 2017 that had nominal rent.

Future minimum lease payments under fixed non-cancellable operating leases that expire on various dates through August 2019 consist of the following (in thousands):

| | December 31, |
|---|---|
| 2019 | $ 71 |
| Total | $ 71 |

***Other Commitments and Contingencies***

In the ordinary course of business, from time to time, the Company may be subject to a broad range of claims and legal proceedings that relate to contractual allegations, patent infringement, employment-related matters and other claims. The Company establishes accruals for matters which it believes that losses are probable and can be reasonably estimated. Although it is not possible to predict with certainty the outcome of these matters, the Company is of the opinion that the ultimate resolution of these matters will not have a material adverse effect on its results of operations or financial position.

**6. License Agreement**

The Company is party to the Pfizer Agreement, as amended on August 2, 2018, for a worldwide exclusive license to certain patent rights and a non-exclusive royalty bearing right and license to certain related data to make, use, develop, commercialize, import and otherwise exploit the clinical product candidate gemcabene. Pfizer retains the right to make, use and import gemcabene solely for internal research purposes.

In partial exchange for the rights granted by Pfizer, the Company agreed to issue shares of its common stock to Pfizer representing 15% of the Company's fully diluted capital at the close of its first arms-length Series A financing, which occurred on March 31, 2015.

The Company agreed to make milestone payments totaling up to $37 million upon the achievement of certain milestones, including the first new drug application (or its foreign equivalent) in any country, regulatory approval in each of the United States, Europe and Japan, the first anniversary of the first regulatory approval in any country, and upon achieving certain aggregate sales levels of gemcabene. Future milestone payments under the Pfizer Agreement, if any, are not expected to begin for at least several years and extend over a number of subsequent years.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**6. License Agreement (Continued)**

The Company also agreed to pay Pfizer tiered royalties on a country-by-country basis based upon the annual amount of net sales, as specified in the Pfizer Agreement, until the later of: (a) five (5) years after the first commercial sale in such country; (b) the expiration of all regulatory or data exclusivity for gemcabene in such country; and (c) the expiration or abandonment of the last valid claim of the licensed patents, including any patent term extensions or supplemental protection certificates in such country (collectively, the Royalty Term). Under the Pfizer Agreement, the Company is obligated to use commercially reasonable efforts to develop and commercialize gemcabene.

On March 31, 2015, upon the closing of the Series A preferred stock financing, the Company issued 675,250 shares of its common stock, at a fair market value of $0.9 million, to Pfizer in connection with the first equity payment, pursuant to which Pfizer became the owner of more than 5% of the Company's capital stock. The transaction was recorded as acquired in-process research and development expenses based on the fair value of the common shares issued since no processes or activities that would constitute a "business" were acquired and none of the rights and underlying assets acquired had alternative future uses or reached a stage of technological feasibility. None of the other milestone or royalty payments were triggered as of December 31, 2018.

The Pfizer Agreement will expire upon expiration of the last Royalty Term. On expiration (but not earlier termination), the Company will have a perpetual, exclusive, fully paid-up, royalty-free license under the licensed patent rights and related data to make, use, develop, commercialize, import and otherwise exploit the clinical product candidate gemcabene. Either party may terminate the Pfizer Agreement for the other party's material breach following a cure period or immediately upon certain insolvency events relating to the other party. Pfizer may immediately terminate the Pfizer Agreement in the event that (i) the Company or any of its affiliates or sublicenses contests or challenges, or supports or assists any third party to contest or challenge, Pfizer's ownership of or rights in, or the validity, enforceability or scope of any of the patents licensed under the Pfizer Agreement or (ii) the Company or any of its affiliates or sublicensees fails to achieve the first commercial sale in at least one country by April 16, 2024. Furthermore, upon termination of the Pfizer Agreement by Pfizer for any of the foregoing reasons, the Company grants Pfizer a non-exclusive, fully paid-up, royalty free, worldwide, transferrable, perpetual and irrevocable license to use any intellectual property rights arising from the development or commercialization of gemcabene by the Company and any trademarks identifying gemcabene and agrees to transfer regulatory filings and approvals to Pfizer or permit Pfizer to cross-reference and rely on such regulatory filings and approvals for gemcabene. The Company may terminate the License Agreement for convenience upon 90 days' written notice and payment of an early termination fee.

**7. Convertible Series A Preferred Stock**

On March 31, 2015, the Company issued 745,637 shares of Series A preferred stock at a per share price of $6.70585, as adjusted for the Reverse Stock Split, or $5.0 million in the aggregate, consisting of $1.5 million in cash and $3.5 million representing 125% of the principal and accrued and unpaid interest on previously issued convertible notes, all of which converted into shares of Series A preferred stock. On August 10, 2016, immediately prior to the closing of the IPO, the Company's Series A preferred stock, together with accrued dividends thereon, converted into 827,205 shares of common stock.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**7. Convertible Series A Preferred Stock (Continued)**

Prior to their conversion into shares of common stock, the Series A preferred stock had the following rights and preferences:

***Dividend Rights***

Dividends effectively accrued on a daily basis at a simple rate of 8% per annum on the sum of the original per share issue price. Dividends were effectively deemed declared daily and were payable upon the occurrence of certain events. In addition, the holders of the Series A preferred stock had rights to participate in common stock dividends, entitling holders of Series A preferred stock to a dividend payable at the same time as the dividend paid on common stock based on the number of shares of common stock each share of Series A preferred stock would convert into if such shares had converted on the record date.

There were no dividends deemed payable and accrued as of December 31, 2018 or 2017 due to the conversion of the Series A preferred stock, together with accrued dividends thereon, on August 10, 2016 immediately prior to the closing of the IPO.

***Voting Rights***

Each share of Series A preferred stock was entitled to vote together with the common stock on all actions to be taken by the stockholders of the Company, based on the number of shares of common stock into which each share of Series A preferred stock could be converted. A separate vote of a majority of the outstanding shares of Series A preferred stock was required to (1) issue or authorize any class or series of equity securities or equivalents, (2) effect any transaction that results in a change in control, (3) change the principal business of the Company, enter new lines of business, or exit the current line of business, (4) issue of convertible debt above a certain threshold, or (5) materially sell, transfer, license, pledge or encumber technology or intellectual property. A management stock option plan approved by the board of directors, however, was not subject to a separate vote of the Series A preferred stockholders, but any subsequent increases to the authorized option pool were subject to approval by the Series A preferred stock holders via a separate vote.

***Liquidation Rights***

In the event of any liquidation, dissolution, or winding-up of the Company, whether voluntary or involuntary, merger, consolidation or transaction in which over 50% of the Company's voting power was transferred, or a sale, lease, transfer, exclusive license or disposition of all or substantially all of the assets of the Company, the Series A preferred stock holders were entitled to the assets of the Company legally available for distribution before any distribution or payment was made to the holders of common stock. The distribution amount would have been equal the original issue price of the Series A preferred stock (as adjusted for any stock dividends, combinations, splits or other recapitalizations since issuance), plus any accrued or declared but unpaid dividends thereon. After payment of the full liquidation preference to the Series A preferred stock holders, the remaining assets legally available for distribution would have been distributed to the holders of common stock and holders of the Series A preferred stock pro rata based on the number of shares of common stock each share of Series A preferred stock would convert into if such shares had converted immediately prior to such liquidation, dissolution, or winding-up.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**7. Convertible Series A Preferred Stock (Continued)**

***Conversion Rights***

Shares of Series A preferred stock, at the option of the holder, could have been converted at any time into shares of common stock. The conversion rate would have been obtained by dividing the Series A preferred stock original issue price of $6.70585 per share, as adjusted for the Reverse Stock Split, by the conversion price per share in effect at the time of conversion. The Series A conversion price was initially equal to the original issue price, but could be adjusted on a broad-based weighted average basis in connection with certain dilutive events. The Series A holder was also entitled to receive additional shares of common stock for any unpaid Series A dividends (whether or not declared).

Shares of Series A preferred stock would have automatically converted into common stock based upon the then-effective Series A conversion price upon the affirmative vote or consent of the holders of at least a majority of the outstanding shares of the Series A preferred stock, or at the closing of a firmly underwritten public offering.

The conversion price for the Series A preferred stock was $6.70585 per share (as adjusted for the Reverse Stock Split) at the time of the conversion of the Series A preferred stock, together with accrued dividends thereon, immediately prior to the closing of the IPO on August 10, 2016.

***Redemption Rights***

The holders of at least 80% of the outstanding shares of Series A preferred stock could have required the Company to redeem all outstanding shares of Series A preferred stock at any time on or after December 31, 2020 at a redemption price equal to the greater of 150% of the liquidation preference of the Series A preferred stock or the fair market value per share plus any unpaid declared dividends. The liquidation preference of the Series A preferred stock was defined as an amount per share equal to $6.70585, as adjusted from time to time for any stock dividends, combinations, splits or recapitalizations, plus any accrued or declared but unpaid dividends thereon.

The redemption value for redeemable preferred stock could have at times been based on fair market value. The assumptions used in calculating the estimated fair market value at each reporting period represented the Company's best estimate, however, inherent uncertainties were involved. As a result, if factors or assumptions changed, the estimated fair value could have been materially different.

The Company recognized changes in the redemption value immediately as they occurred and adjusted the carrying amount of the instrument to equal the redemption value at the end of each reporting period since it was probable that the instruments would have become redeemable. In the absence of retained earnings, these charges were recorded against additional paid-in-capital, if any, and then to accumulated deficit.

The Company evaluated the Series A preferred stock and determined that it was considered an equity host under ASC 815**,** *Derivatives and Hedging.* In making this determination, the Company's analysis followed the whole instrument approach that compared an individual feature against the entire Series A preferred stock instrument that included that feature. The Company's analysis was based on a consideration of the economic characteristics and risks of the Series A preferred stock. More specifically, the Company evaluated all of the stated and implied substantive terms and features of the Series A preferred stock, including: (1) redemption features and their underlying exercisability, (2) existence of any protective covenants, (3) nature of dividends rights, (4) nature of voting rights, and

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**7. Convertible Series A Preferred Stock (Continued)**

(5) the existence and nature of any conversion rights. As a result of the above, the Company concluded that the Series A preferred stock represented an equity host, and as such, the redemption and/or conversion features of the Series A preferred stock were considered to be clearly and closely related to the associated Series A preferred stock host instrument. Accordingly, the redemption and/or conversion features of the Series A preferred stock were not considered an embedded derivative that required bifurcation.

**8. Stockholders' Equity (Deficit)**

**Common Stock**

The Company had 14,265,411 and 10,633,042 shares of its common stock issued and outstanding as of December 31, 2018 and December 31, 2017, respectively. Voting, dividend and liquidation rights of the holders of the common stock are subject to the Company's articles of incorporation, corporate bylaws and underlying shareholder agreements.

In the first quarter of 2018, the Company completed the Follow-On Offering of 3,592,858 shares of common stock which includes 450,000 shares of common stock purchased by the underwriters upon the partial exercise of their overallotment option, at the public offering price of $7.00 per share. The Company received net proceeds of approximately $23.1 million after deducting underwriting discounts and commissions and offering expenses. The costs incurred related to the Follow-On Offering were $2.1 million through December 31, 2018.

On March 15, 2017, the Company issued and sold 1,324,256 units at a price of $9.47 per unit for gross proceeds of approximately $12.5 million in connection with the Private Placement. Each unit consisted of one share of the Company's common stock and a warrant to purchase 0.75 shares of common stock. The Company received net proceeds of approximately $11.3 million after deducting underwriting discounts and commissions and offering expenses. Offering costs incurred related to the 2017 Private Placement were $1.3 million.

***Warrants***

In connection with the Private Placement, the Company issued warrants to the investors participating in the financing to purchase an additional 993,204 shares of common stock. The warrants have a term of five years and were exercisable immediately upon issuance with an exercise price equal to $10.40 per share. The warrants were classified as additional paid-in capital and recorded based on their relative fair value to the underlying common shares issued in the Private Placement. The fair market value of the warrants was approximately $4.9 million. The warrants were valued using the Black-Scholes pricing model with the following assumptions: a risk-free interest rate of 2.0%, a contractual term of five years, zero dividend yield and a volatility factor of 65.1%.

In connection with the First Amendment, the Company issued a warrant to SVB to purchase an additional 36,000 shares of common stock on July 31, 2018 (See Note 4—*Debt*).

During the years ended December 31, 2018 and 2017, zero and 15,000 warrants were exercised, respectively. As of December 31, 2018 and December 31, 2017, warrants to purchase 1,014,204 and 978,204 shares of common stock were outstanding, respectively.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**8. Stockholders' Equity (Deficit) (Continued)**

***Dividend Rights***

Common stock holders are entitled to receive dividends at the sole discretion of the board of directors of the Company. There have been no dividends declared on common stock as of December 31, 2018.

***Voting Rights***

The holders of common stock are entitled to one vote for each share of common stock along with all other classes and series of stock of the Company on all actions to be taken by the stockholders of the Company, including actions that would amend the certificate of incorporation of the Company to increase the number of authorized shares of the common stock.

***Liquidation Rights***

In the event of any liquidation, dissolution, or winding-up of the Company, the holders of common stock shall be entitled to share in the remaining assets of the Company available for distribution post preferential distributions made to holders of the Company's preferred stock. There was no preferred stock outstanding as of December 31, 2018 and 2017.

**Deferred Offering Costs**

There were $21,000 of deferred offering costs capitalized at December 31, 2017 related to the Private Placement. There were no deferred offering costs capitalized as of December 31, 2018.

**9. Share-Based Compensation**

Share-based compensation expense was included in general and administrative and research and development costs as follows in the accompanying statements of comprehensive loss (in thousands):

| | Year Ended December 31, | | |
|---|---|---|---|
| | 2018 | 2017 | 2016 |
| General and administrative | $ 2,378 | $ 4,091 | $ 1,166 |
| Research and development | 1,753 | 1,182 | 552 |
| Total share-based compensation | $ 4,131 | $ 5,273 | $ 1,718 |

***Restricted Stock Awards***

During the years ended December 31, 2018, 2017 and 2016, the Company did not grant any restricted stock awards (RSAs). Previously granted RSAs were subject to various vesting schedules and generally vested ratably over a six to twenty four month period coinciding with their respective service periods. During the years ended December 31, 2018, 2017 and 2016, no RSAs were forfeited.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**9. Share-Based Compensation (Continued)**

A summary of RSA grant activity is as follows:

| | Number of Shares | Weighted-Average Fair Value (per share) |
|---|---|---|
| Non-vested at December 31, 2015 | 348,093 | $ 0.09 |
| Granted | — | $ — |
| Vested | (344,084) | $ 0.09 |
| Non-vested at December 31, 2016 | 4,009 | $ 0.21 |
| Granted | — | $ — |
| Vested | (4,009) | $ 0.21 |
| Non-vested at December 31, 2017 | — | $ — |
| Granted | — | $ — |
| Vested | — | $ — |
| Non-vested at December 31, 2018 | — | $ — |

Grant date fair market value for the RSAs issued prior to the IPO was based on traditional valuation techniques and methods in determining the fair value of the Company's equity as a private company including market, income, and cost valuation approaches. A number of objective and subjective factors were considered including contemporaneous and retrospective valuations of its common stock performed by an unrelated valuation specialist, sales of the Company's convertible preferred stock to unrelated third parties, valuations of comparable peer public companies, the lack of liquidity of the Company's capital stock and general and industry-specific economic outlook. The fair value of the Company's common stock was determined by the Company's board of directors prior to the IPO.

***Stock Options***

In April 2015, the Company adopted a 2015 Equity Incentive Plan (the 2015 Plan) under which 320,615 shares of the Company's common stock were reserved for issuance to employees, directors and consultants. The 2015 Plan permits the grant of incentive and non-statutory stock options, appreciation rights, restricted stock, restricted stock units, performance stock and cash awards, and other stock-based awards.

*Amendment and Restatement of 2015 Equity Incentive Plan*

In April 2016 the Company's board of directors approved the Company's amended and restated 2015 Plan (the A&R 2015 Plan). The A&R 2015 Plan became effective immediately upon the execution and delivery of the underwriting agreement related to the IPO. The A&R 2015 Plan provides for the grant of stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance-based stock awards and other forms of equity awards, as well as performance cash awards. The Company initially reserved 2,400,000 shares of common stock for issuance under the A&R 2015 Plan.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**9. Share-Based Compensation (Continued)**

During the years ended December 31, 2018, 2017 and 2016, the Company granted an aggregate of 772,000, 150,500 and 1,825,700, respectively, of stock options under the A&R 2015 Plan or the 2015 Plan to its officers, directors, employees and consultants, generally vesting over a three or four-year period.

*Inducement Plan*

In September 2016 the Company's board of directors approved the Company's Inducement Plan (the Inducement Plan). The Company initially reserved 300,000 shares of its common stock to be used exclusively for grants of awards to individuals who were not previously employees or directors of the Company, as an inducement material to the individual's entry into employment with the Company within the meaning of Rule 5635(c)(4) of the Nasdaq Listing Rules. The Plan was approved by the Company's board of directors without stockholder approval pursuant to Rule 5635(c)(4), and the terms and conditions of the Plan are substantially similar to the Company's stockholder-approved A&R 2015 Plan. During the years ended December 31, 2018, 2017 and 2016 was 50,000, 98,000 and 198,000 stock options to newly-hired officers and employees were granted, respectively, under the Inducement Plan, generally vesting over a four-year period.

The following table summarizes the Company's stock option plan activity for the years ended December 31, 2018, 2017 and 2016 as follows:

| | Number of Options | Weighted Average Exercise Price | Weighted-Average Remaining Contractual Term (years) | Aggregate Intrinsic Value(1) |
|---|---|---|---|---|
| Outstanding at December 31, 2015 | 302,842 | $ 2.43 | 9.60 | $ 1,031,000 |
| Granted | 2,023,700 | $ 10.07 | — | — |
| Exercised | — | $ — | — | — |
| Forfeited/Cancelled | (83,742) | $ 9.12 | — | — |
| Outstanding at December 31, 2016 | 2,242,800 | $ 9.07 | 9.48 | $ (2,759,000) |
| Granted | 248,500 | $ 12.24 | — | — |
| Exercised | (23,910) | $ 1.92 | — | — |
| Forfeited/Cancelled | (3,250) | $ 1.34 | — | — |
| Outstanding at December 31, 2017 | 2,464,140 | $ 9.46 | 8.58 | $ (3,715,000) |
| Granted | 822,000 | $ 8.24 | — | — |
| Exercised | (40,398) | $ 2.25 | — | — |
| Forfeited/Cancelled | (444,968) | $ 10.61 | — | — |
| Outstanding at December 31, 2018 | 2,800,774 | $ 9.02 | 7.96 | $ (22,994,287) |
| Vested and exercisable at December 31, 2018 | 1,812,181 | $ 9.15 | 7.72 | $ (15,120,294) |
| Vested and expected to vest at December 31, 2018 | 2,800,774 | $ 9.02 | 7.96 | $ (22,994,287) |

(1) The aggregate intrinsic value is calculated as the difference between the exercise price of the underlying options and the fair value of our common stock as of December 31, 2018, 2017 and 2016 of $0.81, $7.95 and $7.84 per share, respectively.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**9. Share-Based Compensation (Continued)**

The weighted average fair value per share of options granted during the years ended December 31, 2018, 2017 and 2016 was $5.07, $7.35 and $6.37, respectively.

The Company measures the fair value of stock options with service-based and performance-based vesting criteria to employees, consultants and directors on the date of grant using the Black-Scholes option pricing model. The fair value of equity instruments issued to non-employees is re-measured as the award vests. The Company does not have history to support a calculation of volatility and expected term. As such, the Company has used a weighted-average volatility considering the volatilities of several guideline companies.

For purposes of identifying similar entities, the Company considered characteristics such as industry, length of trading history, and stage of life cycle. The assumed dividend yield was based on the Company's expectation of not paying dividends in the foreseeable future. The average expected life of the options was determined based on the mid-point between the vesting date and the end of the contractual term according to the "simplified method" as described in Staff Accounting Bulletin 110. The risk-free interest rate is determined by reference to implied yields available from U.S. Treasury securities with a remaining term equal to the expected life assumed at the date of grant. The Company records forfeitures when they occur.

The weighted-average assumptions used in the Black-Scholes option-pricing model are as follows:

| | Year Ended December 31, | | |
|---|---|---|---|
| | 2018 | 2017 | 2016 |
| Expected stock price volatility | 66.3% | 65.8% | 71.447% |
| Expected life of options (years) | 5.8 | 5.9 | 6.02 |
| Expected dividend yield | 0% | 0% | 0% |
| Risk free interest rate | 2.7% | 2.0% | 1.2% |

During the years ended December 31, 2018, 2017 and 2016, 709,521, 861,645 and 276,248 stock options vested, respectively. The weighted average fair value per share of options vesting during the years ended December 31, 2018, 2017 and 2016 was $6.15, $5.99 and $4.59, respectively. During the years ended December 31, 2018, 2017 and 2016, 444,968, 3,250, and 83,742 stock options were forfeited, respectively. As of December 31, 2018, 701,261 shares were available for future issuance under the A&R 2015 and Inducement Plans.

Under the A&R 2015 Plan, common shares reserved automatically increase on January 1st of each year, for a period of 10 years commencing on January 1, 2017 and ending on (and including) January 1, 2026, to an amount equal to 20% of the Company's fully-diluted shares as of December 31st of the preceding calendar year. Notwithstanding the foregoing, the Company's board of directors may act prior to January 1st of a given year to provide that there will be no January 1st increase in the shares reserved for such year, or that the increase in shares reserved for such year will be a lesser number of shares than what would have otherwise been allowed to occur under the provision. Effective January 1, 2018, 415,077 shares were added to the A&R 2015 Plan under the share reserve provision. There were no shares added to the A&R 2015 Plan under the share reserve provision during fiscal year 2017 or 2016. Effective January 1, 2019, 501,001 shares were added to the A&R 2015 Plan under the share reserve provision. See Note 16—*Subsequent Events*.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**9. Share-Based Compensation (Continued)**

Unrecognized share-based compensation cost for the RSAs and stock options issued under the Company's 2014 Shareholders Agreement, A&R 2015 Plan and Inducement Plan was $3.9 million as of December 31, 2018. All of the unrecognized compensation cost was related to the stock options. The non-employee portion of the unrecognized compensation cost was estimated utilizing the Company's fair market value for its common stock as of December 31, 2018. The unrecognized share-based expense is expected to be recognized over a weighted average period of 1.5 years.

*Adoption of 2016 Employee Stock Purchase Plan*

In April 2016 the Company's board of directors approved the 2016 Employee Stock Purchase Plan (the ESPP) in order to enable eligible employees to purchase shares of the Company's common stock at a discount following the effective date of the IPO. The Company's stockholders also approved the ESPP in April 2016 and the ESPP became effective immediately upon the execution and delivery of the underwriting agreement related to the IPO. The Company initially reserved 150,000 shares of common stock for issuance under the ESPP. As of December 31, 2018, no shares were purchased under the ESPP.

**10. Net Loss Per Common Share**

Basic earnings or loss per share of common stock is computed by dividing net loss by the weighted average number of shares of common stock outstanding during the period. The holders of the Series A preferred stock had rights to participate in common stock dividends, entitling the holders of Series A preferred stock to a dividend payable at the same time and rate per share as the dividend paid on common stock based the number of shares of common stock each share of Series A preferred stock would have converted into if such shares had converted on the record date. The Series A preferred stock, however, did not have a contractual obligation to share in the losses of the Company, and as such, no losses were allocated to the Series A preferred stock for the purposes of the basic loss per share calculation while they were outstanding.

Diluted earnings or loss per share of common stock is computed similarly to basic earnings or loss per share except the weighted average shares outstanding are increased to include additional shares from the assumed exercise of any common stock equivalents, if dilutive. The Company's RSAs, stock options, warrants, shares of Series A preferred stock, and convertible notes are considered common stock equivalents while outstanding for this purpose. Diluted earnings is computed utilizing the treasury stock method for the RSAs, stock options and warrants, and in the case of the Series A preferred stock, either the two-class method or the if-converted method, whichever was more dilutive. No incremental common stock equivalents were included in calculating diluted loss per share because such inclusion would be anti-dilutive given the net loss reported for the years ended December 31, 2018,

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**10. Net Loss Per Common Share (Continued)**

2017 and 2016. The following table sets forth the computation of basic and diluted loss per share as of December 31, 2018, 2017 and 2016 (in thousands, except share and per share amounts):

| | Year Ended | | |
|---|---|---|---|
| | 2018 | 2017 | 2016 |
| Numerator: | | | |
| Net loss | $ (23,637) | $ (33,415) | $ (14,586) |
| Adjustment to redemption value on Series A convertible preferred stock | — | — | (366) |
| Net loss attributed to common stock holders | $ (23,637) | $ (33,415) | $ (14,952) |
| Denominator: | | | |
| Basic and diluted weighted average common shares outstanding | 13,805,552 | 10,349,136 | 5,809,396 |
| Basic and diluted net loss per share | $ (1.71) | $ (3.23) | $ (2.57) |

The following potential common shares were not considered in the computation of diluted net loss per share as their effect would have been anti-dilutive:

| | Year Ended | | |
|---|---|---|---|
| | 2018 | 2017 | 2016 |
| Stock options | 2,800,774 | 2,464,140 | 2,242,800 |
| Restricted stock awards | — | — | 4,009 |
| Warrants | 1,014,204 | 978,204 | — |
| Series A | — | — | — |
| Convertible notes | — | — | — |

**11. Fair Value Measurements**

The Company follows accounting guidance that emphasizes that fair value is a market-based measurement, not an entity specific measurement. Fair value is defined as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date." Fair value measurements are defined on a three level hierarchy:

**Level 1 inputs:** Unadjusted quoted prices for identical assets or liabilities in active markets;

**Level 2 inputs:** Quoted prices for similar assets and liabilities in active markets, quoted prices in markets that are not active, or inputs which are observable, weather directly or indirectly, for substantially the full term of the asset or liability;

**Level 3 inputs:** Unobservable inputs that reflect the Company's own assumptions about the assumptions market participants would use in pricing the asset or liability in which there is little, if any, market activity for the asset or liability at the measurement date.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**11. Fair Value Measurements (Continued)**

As of December 31, 2018 and 2017, the fair values of cash and cash equivalents, prepaids, other assets, accounts payable and accrued liabilities approximated their carrying values because of the short-term nature of these assets or liabilities. The estimated fair value of the Company's Interim Notes prior to conversion upon the close of the IPO, and Term Loan was based on amortized cost which was deemed to approximate fair value. The derivative liability associated with the conversion premium on the Interim Notes while outstanding was based on cash flow models discounted at current implied market rates evidenced in recent arms-length transactions representing expected returns by market participants for similar instruments which were based on Level 3 inputs.

The following table provides a roll-forward of the Company's premium conversion derivative liabilities measured at fair value on a recurring basis using unobservable level 3 inputs (in thousands):

| | For the Year Ended December 31, | | |
|---|---|---|---|
| | 2018 | 2017 | 2016 |
| Balance as of beginning of period | $ — | $ — | $ 345 |
| Issuance of underlying convertible notes | — | — | 505 |
| Change in fair value of premium conversion derivative | — | — | (850) |
| Reversal of premium conversion derivative associated with note extinguishment | — | — | — |
| Redemption of underlying convertible notes | — | — | — |
| Balance as of end of period | $ — | $ — | $ — |

There were no financial instruments measured on a recurring basis as of December 31, 2018 and 2017 and on a non-recurring basis for any of the periods presented.

**12. Income Taxes**

On December 22, 2017, the Tax Cuts and Jobs Act (the TCJA), which significantly modified U.S. corporate income tax law, was signed into law by President Trump. The TCJA contains significant changes to corporate income taxation, including but not limited to the reduction of the corporate income tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of earnings (except for certain small businesses), limitation of the deduction for net operating losses to 80% of current year taxable income and generally eliminating net operating loss carrybacks, allowing net operating losses to carryforward without expiration, one-time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits (including changes to the orphan drug tax credit and changes to the deductibility of research and experimental expenditures that will be effective in the future). This revaluation resulted in a reduction to the Company's deferred tax asset of $6.8 million as of December 31, 2017. This amount was offset by a corresponding reduction to the Company's valuation allowance. The other provisions of the TCJA did not have a material impact on the December 31, 2017 financial statements. The Company's final determination of the TCJA impact and the remeasurement of its deferred assets and liabilities was completed prior to the deadline of one year from the

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**12. Income Taxes (Continued)**

enactment of the TCJA. For the year ended December 31, 2018, there were no material changes to the analysis originally performed as of December 31, 2017.

The effective tax rate for the years ended December 31, 2018, 2017 and 2016 was zero percent. A reconciliation of income tax computed at the statutory federal income tax rate to the provision (benefit) for income taxes included in the accompanying statements of comprehensive loss is as follows:

| | For the Year Ended December 31, | | |
|---|---|---|---|
| | 2018 | 2017 | 2016 |
| Income tax (benefit) provision at federal statutory rate | (21.0)% | (34.0)% | (34.0)% |
| Valuation allowance | 28.2 | 21.0 | 40.2 |
| U.S. tax reform | — | 20.2 | — |
| State income tax, net of federal benefit | (4.8) | (4.1) | (4.7) |
| Convertible notes | — | — | 1.1 |
| Research credits | (3.0) | (3.6) | (4.0) |
| Other | 0.6 | 0.5 | 1.4 |
| Effective tax rate | —% | —% | —% |

Significant components of the Company's deferred tax assets and liabilities are summarized in the tables below as of (in thousands):

| | Year Ended December 31, | |
|---|---|---|
| | 2018 | 2017 |
| Deferred tax assets: | | |
| Federal and state operating loss carryforwards | $ 5,073 | $ 3,349 |
| Research and development costs deferral election | 12,264 | 8,881 |
| Acquired intangibles | 235 | 235 |
| Term loan | — | 33 |
| Charitable contributions | 21 | 14 |
| Stock-based compensation | 2,618 | 1,722 |
| Research and development credit carryforwards | 2,655 | 1,947 |
| | 22,866 | 16,181 |
| Valuation allowance | (22,866) | (16,181) |
| Total deferred tax assets, net of valuation allowance | — | — |
| Deferred tax liabilities: | | |
| Total deferred tax liabilities | — | — |
| Net deferred tax assets | $ — | $ — |

As of December 31, 2018 and 2017, the Company had gross deferred tax assets of approximately $22.9 million and $16.2 million, respectively. Realization of the deferred assets is primarily dependent upon future taxable income, if any, the amount and timing of which are uncertain. The Company has had significant pre-tax losses since its inception. The Company has not yet generated revenues and faces significant challenges to becoming profitable. Accordingly, the net deferred tax assets have been

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**12. Income Taxes (Continued)**

fully offset by a valuation allowance of $22.9 million and $16.2 million as of December 31, 2018 and 2017, respectively. U.S. net deferred tax assets will continue to require a valuation allowance until the Company can demonstrate their realizability through sustained profitability or another source of income.

As of December 31, 2018 and 2017, the tax effect of the Company's federal net operating loss carryforwards was approximately $4.2 million and $2.8 million, respectively. The Company had federal research credit carryforwards as of December 31, 2018 and 2017 of approximately $2.6 million and $1.9 million, respectively. The federal net operating loss incurred prior to January 1, 2018 and tax credit carryforwards will begin to expire in 2034 if not utilized. Federal net operating losses incurred after December 31, 2017 will not expire. As of December 31, 2018 and 2017, the Company had state net operating loss carryforwards with a tax effect of approximately $0.9 million and $0.6 million, respectively. The Company had state research credit carryforwards of $0.1 million and $45,000 as of December 31, 2018 and 2017, respectively. The state net operating loss carryforwards will begin to expire in 2026, if not utilized, and the state research credit carryforwards will begin to expire in 2023 if not utilized. Recent tax reform legislation has significantly revised the rules applicable to the utilization of net operating losses for tax years either beginning or ending after January 1, 2018.

Utilization of the net operating loss carryforwards and credits may be subject to a substantial annual limitation due to the ownership change limitations provided by Section 382 of the Internal Revenue Code of 1986, as amended, and similar state provisions. Generally, in addition to certain entity reorganizations, the limitation applies when one or more "5-percent shareholders" increase their ownership, in the aggregate, by more than 50 percentage points over a 36-month time period testing period, or beginning the day after the most recent ownership change, if shorter. The annual limitation may result in the expiration of net operating losses and credits before utilization.

The Company recognizes interest and/or penalties related to uncertain tax positions in income tax expense. There were no uncertain tax positions as of December 31, 2018 and 2017, and as such, no interest or penalties were recorded to income tax expense.

The Company's corporate returns are subject to examination beginning with the 2015 tax year for federal and in various state jurisdictions.

**13. Supplementary Data—Quarterly Financial Data (unaudited)**

The following table presents certain unaudited quarterly financial information for each of the eight fiscal quarters in the period ended December 31, 2018. This quarterly information has been prepared on the same basis as the audited financial statements and includes all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of the information for the periods

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**13. Supplementary Data—Quarterly Financial Data (unaudited) (Continued)**

presented. The results for these quarterly periods are not necessarily indicative of the operating results for a full year or any future period.

| | Three Months Ended | | | |
|---|---|---|---|---|
| | December 31, 2018(B) | September 30, 2018(B) | June 30, 2018 | March 31, 2018 |
| | (in thousands, except per share amounts) | | | |
| Operating expenses: | | | | |
| General and administrative | $ 1,468 | $ 2,364 | $ 2,574 | $ 2,087 |
| Research and development | 1,833 | 3,542 | 3,960 | 4,977 |
| Total operating expenses | 3,301 | 5,906 | 6,534 | 7,064 |
| Loss from operations | (3,301) | (5,906) | (6,534) | (7,064) |
| Interest expense | (178) | (172) | (144) | (160) |
| Other expense | (177) | (1) | — | — |
| Loss before income taxes | (3,656) | (6,079) | (6,678) | (7,224) |
| Provision (benefit) for income taxes | — | — | — | — |
| Net loss | (3,656) | (6,079) | (6,678) | (7,224) |
| Other comprehensive loss, net of tax | — | — | — | — |
| Comprehensive loss | $ (3,656) | $ (6,079) | $ (6,678) | $ (7,224) |
| Net loss per share: | | | | |
| Basic and diluted(A) | $ (0.26) | $ (0.43) | $ (0.47) | $ (0.58) |

| | Three Months Ended | | | |
|---|---|---|---|---|
| | December 31, 2017 | September 30, 2017 | June 30, 2017 | March 31, 2017 |
| | (in thousands, except per share amounts) | | | |
| Operating expenses: | | | | |
| General and administrative | $ 1,487 | $ 2,050 | $ 4,678 | $ 2,223 |
| Research and development | 5,080 | 6,489 | 5,837 | 5,280 |
| Total operating expenses | 6,567 | 8,539 | 10,515 | 7,503 |
| Loss from operations | (6,567) | (8,539) | (10,515) | (7,503) |
| Interest (expense) income | (179) | (132) | 13 | 12 |
| Other expense | — | — | — | (5) |
| Loss before income taxes | (6,746) | (8,671) | (10,502) | (7,496) |
| Provision (benefit) for income taxes | — | — | — | — |
| Net loss | (6,746) | (8,671) | (10,502) | (7,496) |
| Other comprehensive loss, net of tax | — | — | — | — |
| Comprehensive loss | $ (6,746) | $ (8,671) | $ (10,502) | $ (7,496) |
| Net loss per share: | | | | |
| Basic and diluted(A) | $ (0.63) | $ (0.82) | $ (0.99) | $ (0.79) |

(A) Net loss per share for the year may not equal the sum of the four historical quarters loss per share due to changes in weighted-average shares outstanding.

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**13. Supplementary Data—Quarterly Financial Data (unaudited) (Continued)**

(B) On September 18, 2018, the Company's Board of Directors approved a workforce reduction involving 5 employees (or 33% of the workforce at that time) to lower costs and conserve cash resources in light of the previously announced request by the FDA for additional pre-clinical data required in order to schedule an End of Phase 2 (EOP2) meeting for gemcabene in the Company's target indications. Related expenses recognized during the year ended December 31, 2018 totaled approximately $1.6 million, largely in the third quarter, of which approximately $0.6 million was recorded as general and administrative expense and $1.0 million was recorded as research and development expense.

**14. Related Party Transactions**

The Company rented an office in Northville, Michigan from an LLC owned by two officers under short-term agreements during the years ended December 31, 2017, 2016 and 2015. The original facility lease, as amended, was cancelled and replaced with a cancellable lease agreement in August 2016 for limited use of office space in the same Northville location. The new lease agreement became effective in August 2016 and expired in September 2017. Rent expense under the related party agreements was nominal during the year ended December 31, 2017 and was $21,000 and $23,000 during the years ended December 31, 2016 and 2015, respectively. There was no rent expense under the related party agreements during the year ended December 31, 2018.

In February 2016, the Company issued an additional $0.2 million of Interim Notes, which included two notes issued to two board members (or entities they control) in the amount of $81,000. The February 2016 Interim Note issuances also included a $20,000 note to an investor who is related to an officer of the Company. The Interim Note were converted upon the close of the IPO.

In April 2016, the Company issued an additional $5.0 million of Interim Notes, which included two notes to investors who were related to two of the Company's officers in the aggregate amount of $0.2 million. The April 2016 Interim Notes issuances also included three notes to investors who were related to three of the Company's directors in the aggregate amount of $2.3 million. The Interim Note were converted upon the close of the IPO.

The IPO included 154,450 shares sold to 5 officers and 3 board members, totaling $1.5 million. In addition, 500,000 shares were sold to 1 investor who is related to 1 of the Company's directors, totaling $5.0 million, and 47,000 shares totaling $0.5 million were sold to 14 investors who are related to 5 officers of the Company.

The Private Placement included 56,678 units sold to three board members, for aggregate proceeds totaling approximately $0.5 million, and 52,798 units sold to one investor who was related to one board member, for proceeds totaling approximately $0.5 million.

In the first quarter of 2018, in connection with the Follow-On Offering of 3,592,858 shares of common stock, the offering included 14,286 shares sold to 1 officer, for aggregate proceeds totaling approximately $0.1 million and 71,429 shares sold to 1 investor who is an affiliate of 1 officer and board member, for proceeds totaling approximately $0.5 million.

**15. Defined Contribution Plan**

The Company adopted a 401(k) defined contribution plan on September 5, 2017, effective as of January 1, 2017, for all employees over age 21. Employees can defer up to 100% of their compensation

**Gemphire Therapeutics Inc.**

**Notes to Financial Statements (Continued)**

**15. Defined Contribution Plan (Continued)**

through payroll withholdings into the plan subject to federal law limits. Effective January 1, 2018, the Company began matching contributions on deferrals at 100% of deferrals up to 3% of one's contributions and 50% on deferrals over 3%, but not exceeding 5% of one's contributions in order to satisfy certain non-discrimination tests required by the Internal Revenue Code. Employee contributions and any employer matching contributions made to satisfy certain non-discrimination tests required by the Internal Revenue Code are 100% vested upon contribution. Discretionary employer matches vest over a six-year period beginning on the second anniversary of an employee's date of hire. The amount of matching contributions made during the years ended December 31, 2018 and 2017 was $0.1 million and zero, respectively.

**16. Subsequent Events**

***Term Loan***

Effective January 28, 2019, the Company prepaid in full all outstanding indebtedness under the Term Loan. As of the date of repayment, the Company had approximately $8.9 million in principal and interest outstanding as well as a final payment fee due of $1.0 million. Upon repayment, approximately $0.8 million of unamortized note discounts were recognized as interest expense. See Note 4—*Debt* for further information relating to the Term Loan.

***A&R 2015 Plan***

Effective January 1, 2019, 501,001 shares were added to the A&R 2015 Plan under the share reserve provision. See Note 9—*Share-Based Compensation.*

**Gemphire Therapeutics Inc.**

**Condensed Balance Sheets**

**(in thousands, except share amounts and par value)**

| | June 30, 2019 (unaudited) | December 31, 2018 |
|---|---|---|
| **Assets** | | |
| Current assets: | | |
| Cash and cash equivalents | $ 3,643 | $ 18,954 |
| Restricted cash | 15 | — |
| Prepaid expenses | 252 | 715 |
| Other assets | 78 | 17 |
| Total current assets | 3,988 | 19,686 |
| Right-of-use assets and deposits | 26 | 8 |
| Total assets | $ 4,014 | $ 19,694 |
| **Liabilities and stockholders' equity** | | |
| Current liabilities: | | |
| Accounts payable | $ 1,668 | $ 2,044 |
| Accrued liabilities | 382 | 438 |
| Term loan—current portion | — | 9,437 |
| Total current liabilities | 2,050 | 11,919 |
| Long-term liabilities: | | |
| Other liabilities | — | 1 |
| Total liabilities | 2,050 | 11,920 |
| Commitments and contingencies (Note 5) | | |
| Stockholders' equity: | | |
| Preferred stock, $0.001 par value; 10,000,000 shares authorized as of June 30, 2019 and December 31, 2018, no shares issued or outstanding as of June 30, 2019 and December 31, 2018. | — | — |
| Common stock, $0.001 par value; 100,000,000 shares authorized as of June 30, 2019 and December 31, 2018, 14,265,411 shares issued and outstanding at June 30, 2019 and December 31, 2018. | 22 | 22 |
| Additional paid—in capital | 92,774 | 91,863 |
| Accumulated deficit | (90,832) | (84,111) |
| Total stockholders' equity | 1,964 | 7,774 |
| Total liabilities and stockholders' equity | $ 4,014 | $ 19,694 |

See accompanying notes to condensed financial statements.

**Gemphire Therapeutics Inc.**

**Condensed Statements of Comprehensive Loss**

**(in thousands, except share and per share amounts)**

**(unaudited)**

| | For the Three Months Ended June 30, | | For the Six Months Ended June 30, | |
|---|---|---|---|---|
| | 2019 | 2018 | 2019 | 2018 |
| Operating expenses: | | | | |
| General and administrative | $ 1,115 | $ 2,574 | $ 2,522 | $ 4,661 |
| Research and development | 1,234 | 3,960 | 2,627 | 8,937 |
| Total operating expenses | 2,349 | 6,534 | 5,149 | 13,598 |
| Loss from operations | (2,349) | (6,534) | (5,149) | (13,598) |
| Interest income (expense), net | 10 | (144) | (820) | (304) |
| Other expense | (581) | — | (752) | — |
| Loss before income taxes | (2,920) | (6,678) | (6,721) | (13,902) |
| Provision (benefit) for income taxes | — | — | — | — |
| Net loss | (2,920) | (6,678) | (6,721) | (13,902) |
| Other comprehensive loss, net of tax | — | — | — | — |
| Comprehensive loss | $ (2,920) | $ (6,678) | $ (6,721) | $ (13,902) |
| Net loss per share: | | | | |
| Basic and diluted (Note 9) | $ (0.20) | $ (0.47) | $ (0.47) | $ (1.04) |
| Number of shares used in per share calculations: | | | | |
| Basic and diluted | 14,265,411 | 14,232,313 | 14,265,411 | 13,340,941 |

See accompanying notes to condensed financial statements.

**Gemphire Therapeutics Inc.**

**Condensed Statements of Changes in Stockholders' Equity**

**(in thousands, except share amounts)**

**(unaudited)**

| | Series A Convertible Preferred Stock | | Common Stock | | Additional Paid-In Capital | Accumulated Deficit | Total Equity (Deficit) |
|---|---|---|---|---|---|---|---|
| | Shares | Amount | Shares | Amount | | | |
| Balance at January 1, 2018 | — | $ — | 10,633,042 | $ 18 | $ 64,397 | $ (60,474) | $ 3,941 |
| Issuance of common stock | — | — | 3,592,858 | 4 | 25,146 | — | 25,150 |
| Issuance costs | — | — | — | — | (2,093) | — | (2,093) |
| Exercise of stock options | — | — | 6,413 | — | 23 | — | 23 |
| Share-based compensation—employee | — | — | — | — | 1,019 | — | 1,019 |
| Share-based compensation—non-employee | — | — | — | — | 1 | — | 1 |
| Net loss | — | — | — | — | — | (7,224) | (7,224) |
| Balance at March 31, 2018 | — | $ — | 14,232,313 | $ 22 | $ 88,493 | $ (67,698) | $ 20,817 |
| Share-based compensation—employee | — | — | — | — | 908 | — | 908 |
| Share-based compensation—non-employee | — | — | — | — | 1 | — | 1 |
| Net loss | — | — | — | — | — | (6,678) | (6,678) |
| Balance at June 30, 2018 | — | $ — | 14,232,313 | $ 22 | $ 89,402 | $ (74,376) | $ 15,048 |
| Balance at January 1, 2019 | — | $ — | 14,265,411 | $ 22 | $ 91,863 | $ (84,111) | $ 7,774 |
| Share-based compensation—employee | — | — | — | — | 473 | — | 473 |
| Net loss | — | — | — | — | — | (3,801) | (3,801) |
| Balance at March 31, 2019 | — | $ — | 14,265,411 | $ 22 | $ 92,336 | $ (87,912) | $ 4,446 |
| Share-based compensation—employee | — | — | — | — | 438 | — | 438 |
| Net loss | — | — | — | — | — | (2,920) | (2,920) |
| Balance at June 30, 2019 | — | $ — | 14,265,411 | $ 22 | $ 92,774 | $ (90,832) | $ 1,964 |

See accompanying notes to condensed financial statements.

**Gemphire Therapeutics Inc.**

**Condensed Statements of Cash Flows**

**(in thousands)**

**(unaudited)**

| | For the Six Months Ended June 30, | |
|---|---|---|
| | 2019 | 2018 |
| **Operating activities** | | |
| Net loss | $ (6,721) | $ (13,902) |
| Adjustments to reconcile net loss to net cash used in operating activities: | | |
| Share-based compensation | 911 | 1,929 |
| Non-cash discount amortization on term loan | 822 | 154 |
| Change in assets and liabilities: | | |
| Prepaid expenses and other assets | 384 | (223) |
| Accounts payable | (376) | (1,456) |
| Accrued and other liabilities | (57) | (16) |
| Net cash used in operating activities | (5,037) | (13,514) |
| **Investing activities** | | |
| Net cash provided by (used in) investing activities | — | — |
| **Financing activities** | | |
| Repayment of principal | (10,259) | — |
| Exercise of stock options | — | 23 |
| Proceeds from sale of common stock | — | 25,150 |
| Offering costs | — | (2,093) |
| Net cash (used in) provided by financing activities | (10,259) | 23,080 |
| Net (decrease) increase in cash, cash equivalents and restricted cash | (15,296) | 9,566 |
| Cash, cash equivalents and restricted cash at beginning of period | 18,954 | 18,473 |
| Cash, cash equivalents and restricted cash at end of period | $ 3,658 | $ 28,039 |
| *Supplemental disclosure of cash flow information:* | | |
| Cash paid for income taxes | $ — | $ — |
| Cash paid for interest | $ 75 | $ 232 |
| *Reconciliation of cash, cash equivalents and restricted cash:* | | |
| Cash and cash equivalents | $ 3,643 | $ 28,039 |
| Restricted cash | 15 | — |
| Total cash, cash equivalents and restricted cash | $ 3,658 | $ 28,039 |

See accompanying notes to condensed financial statements.

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited)**

**1. The Company and Basis of Presentation**

The Company, headquartered in Livonia Michigan, is a clinical-stage biopharmaceutical entity focused on developing and commercializing therapies for the treatment of dyslipidemia, a serious medical condition that increases the risk of life threatening cardiovascular disease, particularly orphan indications as well as NAFLD/NASH (nonalcoholic fatty liver disease/non-alcoholic steatohepatitis). The Company's primary activities to date have been conducting research and development activities, planning and conducting clinical trials, performing business and financial planning, recruiting personnel and raising capital. On July 24, 2019, the Company entered into a definitive agreement (the "Merger Agreement") with GR Merger Sub Inc., a Delaware corporation and the Company's wholly owned subsidiary ("Merger Sub"), and NeuroBo Pharmaceuticals, Inc., a Delaware corporation ("NeuroBo"), pursuant to which Merger Sub will merge with and into NeuroBo, with NeuroBo surviving as a wholly owned subsidiary of the Company in an all-stock transaction (the "Merger"). (See Note 14—*Subsequent Events*.)

The Company is subject to certain risks, which include risks related to the proposed Merger and the need to research, develop, and clinically test potentially therapeutic products, initially one product candidate gemcabene (also known as CI-1027); obtain regulatory approval for its products and commercialize them around the world, if approved; expand its management scientific staff; finance its operations; and find collaboration partners to further advance development and commercial efforts.

**Follow-On Public Offering**

On February 12, 2018, the Company completed an underwritten public offering (the Follow-On Offering) of 3,142,858 shares of common stock at the public offering price of $7.00 per share. As part of such offering, the Company issued 450,000 additional shares of common stock representing partial exercise of the underwriters' overallotment option. The Company received net proceeds of approximately $23.1 million after deducting underwriting discounts and commissions and offering expenses.

**Capital Requirements**

The Company has sustained operating losses since inception and expects such losses to continue over the next several years. Management plans to continue financing the Company's operations with equity and/or debt issuances. The Company's management believes the Company's cash and cash equivalents on hand are not adequate to fund the Company's operations for at least the next 12 months (see *Going Concern* section below). If adequate funds are not available, the Company may be required to delay, reduce the scope of, or eliminate part or all of its research and development programs or discontinue its operations.

**Basis of Presentation**

The accompanying condensed financial statements have been prepared by the Company, without audit, pursuant to the rules and regulations of the SEC. Certain information and footnote disclosures normally included in annual financial statements prepared in accordance with U.S. generally accepted accounting principles (GAAP) have been condensed or omitted pursuant to such rules and regulations. The condensed financial statements may not include all disclosures required by U.S. GAAP; however, the Company believes that the disclosures are adequate to make the information presented not misleading. These unaudited condensed financial statements should be read in conjunction with the

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**1. The Company and Basis of Presentation (Continued)**

audited financial statements and the notes thereto for the fiscal year ended December 31, 2018 included in the Company's Annual Report on Form 10-K filed with the SEC on March 18, 2019. The condensed balance sheet at December 31, 2018 was derived from the audited financial statements.

In the opinion of management, all adjustments, consisting of only normal recurring adjustments that are necessary to present fairly the financial position, results of operations, and cash flows for the interim periods, have been made. The results of operations for the interim periods are not necessarily indicative of the operating results for the full fiscal year or any future periods.

**Going Concern**

The accompanying condensed financial statements have been prepared assuming that the Company will continue as a going concern, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. In accordance with Financial Accounting Standards Board (FASB) Accounting Standards Update (ASU) No. 2014-15, *Presentation of Financial Statements—Going Concern* (Subtopic 205-40), the Company has disclosed its conclusions regarding whether there is substantial doubt about the entity's ability to continue as a going concern within one year from the date of the issuance of these financial statements.

In the course of its activities, the Company has incurred losses and negative cash flows from operations since its inception. As of June 30, 2019, the Company had an accumulated deficit of $90.8 million. The Company expects to incur losses for the foreseeable future. The Company believes that its cash and cash equivalents of $3.6 million at June 30, 2019 are not sufficient to fund the Company's current operating plan for at least twelve months after the date the condensed financial statements are issued. The Company has no current source of revenue to sustain its present activities and does not expect to generate revenue until, and unless, the Food and Drug Administration (FDA) or other regulatory authorities approve, and the Company successfully commercializes, gemcabene or any other product candidate it may pursue in the future or unless certain development and commercialization milestones are met under the Beijing SL Agreement (See Note 14—*Subsequent Events*). Until such time, if ever, the Company expects to finance its cash needs through a combination of equity and debt financings as well as collaborations, strategic alliances and licensing arrangements. The Company does not have any committed external source of funds beyond the upfront gross payment of $2.5 million due from Beijing SL under the Beijing SL Agreement (See Note 14—*Subsequent Events*) and there can be no assurance that the Company will be successful in acquiring additional funding at levels sufficient to fund its operations.

These conditions raise substantial doubt about the Company's ability to continue as a going concern. If the Company is unable to raise additional capital in sufficient amounts or on terms acceptable to it, or the proposed Merger is not consummated, the Company may have to significantly reduce or terminate its operations or delay, further scale back or discontinue the development of gemcabene or the board of directors may elect to dissolve and liquidate the Company's assets. The condensed financial statements do not include any adjustments that might result from the outcome of this uncertainty.

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**2. Summary of Significant Accounting Policies**

**Use of Estimates**

The preparation of condensed financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the condensed financial statements and accompanying notes. Actual results could differ from those estimates.

**Cash and Cash Equivalents**

The Company considers all highly liquid investments with an original maturity of 90 days or less at the time of deposit to be cash equivalents. The Company invests excess cash in readily available checking and savings accounts and invests in highly liquid investments in money market accounts.

**Restricted Cash**

The Company considers the cash security requirement related to a commercial credit card arrangement with Silicon Valley Bank as restricted cash (See Note 4—*Debt*).

**Fair Value of Financial Instruments**

The Company's condensed financial instruments include principally cash and cash equivalents, other assets, accounts payable, accrued liabilities and debt. The carrying amounts for these condensed financial instruments reported in the balance sheets approximate their fair values. See Note 10—*Fair Value Measurements*, for further discussion of fair values.

**General and Administrative Expenses**

General and administrative expenses consist primarily of personnel-related costs, including salaries and share-based compensation costs, for personnel in functions not directly associated with research and development activities. Other significant costs include legal fees related to intellectual property and corporate matters and professional fees for accounting and other services.

**Research and Development Expenses**

Research and development expenses consist of costs incurred in performing research and development activities, including compensation for research and development employees, costs associated with preclinical studies and trials, regulatory activities, manufacturing activities to support clinical activities, license fees, non-legal patent costs, fees paid to external service providers that conduct certain research and development activities, clinical costs and an allocation of overhead expenses. Research and development costs are expensed as incurred.

**Income Taxes**

The Company utilizes the liability method of accounting for income taxes as required by Accounting Standards Codification (ASC) 740, *Income Taxes*. Under this method, deferred tax assets and liabilities are determined based on differences between financial reporting and the tax basis of assets and liabilities and are measured using enacted tax rates and laws that will be in effect when the differences are expected to reverse. Currently, there is no provision for income taxes, as the Company has incurred operating losses to date, and a full valuation allowance has been provided on the net deferred tax assets.

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**2. Summary of Significant Accounting Policies (Continued)**

**Share-Based Compensation**

The Company accounts for share-based compensation in accordance with the provisions of ASC 718, *Compensation—Stock Compensation* (ASC 718). Accordingly, compensation costs related to equity instruments granted are recognized at the grant-date fair value. The Company records forfeitures when they occur. Share-based compensation arrangements to non-employees are accounted for in accordance with the applicable provisions of ASC 718 and ASC 505, *Equity*, using a fair value approach.

**Segment Information**

Operating segments are components of an enterprise for which separate financial information is available and is evaluated regularly by the Company's chief operating decision maker in deciding how to allocate resources and assessing performance. The Company's chief operating decision maker is its Chief Executive Officer. The Company's Chief Executive Officer views the Company's operations and manages its business in one operating segment, which is the business of development and commercialization of therapeutics for the treatment of dyslipidemia, a serious medical condition that increases the risk of life threatening cardiovascular disease particularly orphan indications. Accordingly, the Company has a single reportable segment.

**Jumpstart Our Business Startups Act Accounting Election**

As an emerging growth company under the Jumpstart Our Business Startups Act (JOBS Act), the Company is eligible to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies. The Company has irrevocably elected not to avail itself of this exemption and, therefore, will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

**Recent Accounting Pronouncements**

***Recent Accounting Pronouncements Adopted***

In January 2016, the FASB issued ASU No. 2016-01, *Financial Instruments—Overall: Recognition and Measurement of Financial Assets and Financial Liabilities.* The guidance affects the accounting for equity investments, financial liabilities under the fair value option and the presentation and disclosure requirements of financial instruments. This pronouncement is effective for annual and interim reporting periods beginning after December 15, 2018, with early adoption permitted for the accounting guidance on financial liabilities under the fair value option. The Company adopted this standard on January 1, 2019 and it did not have a material impact on the Company's financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)* and subsequently amended the guidance relating largely to transition considerations under the standard in January 2017 and July 2018. The objective of this update is to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and disclosing key information about leasing arrangements. This ASU is effective for fiscal years beginning after December 15, 2018, including interim periods within those annual periods. The Company adopted the standard on January 1, 2019, and applied the modified retrospective approach to each lease in existence at the adoption date. As such, the Company did not restate comparative periods and did not recognize any

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**2. Summary of Significant Accounting Policies (Continued)**

cumulative adjustment to retained earnings on the date of the adoption given that no difference in operating expense resulted upon adoption. The Company elected the package of practical expedients provided under the standard. The Company recognized approximately $0.1 million of lease assets and liabilities on the balance sheet as of January 1, 2019. The new standard did not have an impact on the Company's statements of comprehensive loss or statements of cash flows.

In November 2016, the FASB issued ASU No. 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash*. The objective of this ASU is to eliminate the diversity in practice related to the classification of restricted cash or restricted cash equivalents in the statement of cash flows. For public business entities, this ASU is effective for annual and interim reporting periods beginning after December 15, 2017, with early adoption permitted. The amendments in this update should be applied retrospectively to all periods presented. The Company adopted this standard on January 1, 2018 and it did not have a material impact on the Company's financial statements.

In May 2017, the FASB issued ASU 2017-09, *Compensation—Stock Compensation (Topic 718): Scope of Modification Accounting* (ASU 2016-09), which provides guidance about which changes to the terms or conditions of a share-based payment awards require an entity to apply modification accounting in Topic 718. This pronouncement is effective for annual reporting periods beginning after December 15, 2017, with early adoption permitted. The Company adopted this standard on January 1, 2018 and it did not have a material impact on the Company's financial statements.

In June 2018, the FASB issued ASU 2018-07, *Compensation—Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting (ASU 2018-07)*, which expands the scope of Topic 718 to include share-based payment transactions for acquiring goods and services from nonemployees. An entity should generally apply the requirements of Topic 718 to nonemployee awards except in circumstances where there is specific guidance on inputs to an option pricing model and the attribution of cost. ASU 2018-07 specifies that Topic 718 applies to all share-based payment transactions in which a grantor acquires goods or services to be used or consumed in a grantor's own operations by issuing share-based payment awards. The guidance also clarifies that Topic 718 does not apply to share-based payments used to effectively provide (1) financing to the issuer or (2) awards granted in conjunction with selling goods or services to customers as part of a contract accounted for under Topic 606. This guidance is effective for annual reporting periods beginning after December 15, 2018, with early adoption permitted, but no earlier than an entity's adoption date of Topic 606. The Company adopted this standard on January 1, 2019 and it did not have an impact on the Company's financial statements.

***Recent Accounting Pronouncements Not Yet Adopted***

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement (ASU 2018-13).* The new guidance modifies the disclosure requirements in Topic 820 as follows:

- Removals: the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy; the policy for timing of transfers between levels; and the valuation processes for Level 3 fair value measurements.

- Modifications: for investments in certain entities that calculate net asset value, an entity is required to disclose the timing of liquidation of an investee's assets and the date when

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**2. Summary of Significant Accounting Policies (Continued)**

restrictions from redemption might lapse only if the investee has communicated the timing to the entity or announced the timing publicly; and the amendments clarify that the measurement uncertainty disclosure is to communicate information about the uncertainty in measurement as of the reporting date.

- Additions: the changes in unrealized gains and losses for the period included in other comprehensive income for recurring Level 3 fair value measurements held at the end of the reporting period; and the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements.

This guidance is effective for all entities for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. The amendments on changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements, and the narrative description of measurement uncertainty should all be applied prospectively for only the most recent interim or annual period presented in the initial year of adoption. All other amendments should be applied retrospectively to all periods presented upon their effective date. Early adoption is permitted. An entity is permitted to early adopt any removed or modified disclosures upon issuance of ASU 2018-13 and delay adoption of the additional disclosures until their effective date. The Company is currently evaluating the impact of the new guidance on its financial statements.

**3. Accrued Liabilities**

Accrued liabilities consist of the following (in thousands):

| | June 30, 2019 | December 31, 2018 |
|---|---|---|
| Accrued compensation and other payroll liabilities | $ 20 | $ 137 |
| Legal costs | 269 | 106 |
| Accrued interest | — | 43 |
| Lease liability | 18 | — |
| Other research and development expenses | 54 | 135 |
| Other general and administrative expenses | 21 | 17 |
| Total | $ 382 | $ 438 |

**4. Debt**

**Term Loan**

On January 25, 2019, the Company agreed to prepay in full all outstanding indebtedness under the Loan and Security Agreement (the "Original Loan Agreement") with Silicon Valley Bank (SVB) dated July 24, 2017 (the "Initial Effective Date"), as amended by the First Amendment, dated July 31, 2018 (the "First Amendment" and, the Original Loan Agreement, as amended by the First Amendment, the "Loan Agreement"). Effective January 28, 2019, the Company prepaid in full all outstanding indebtedness under the Term Loan. As of the date of repayment, the Company had approximately $8.9 million in principal and interest outstanding as well as a final payment fee due of $1.0 million. Upon repayment, approximately $0.8 million of unamortized note discounts were recognized as interest expense.

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**4. Debt (Continued)**

The obligations, liabilities, covenants, and terms that are expressly specified in the Loan Agreement and any other related loan and collateral security documents issued by the Company to SVB in connection with the transaction evidenced by the Loan Agreement as surviving termination shall continue to survive notwithstanding the payment, including without limitation, the Company's indemnity obligations and the Company's obligation to pay to SVB a success fee of 3.5% of the funded principal amount of the Term Loan in the event any of the following occur on or before 5:00 PM, Eastern time, on July 24, 2024: (a) the Company receives FDA approval for any new drug application for gemcabene, (b) a sale or other transfer of all or substantially all of the assets of the Company occurs, (c) a merger or consolidation of the Company with or into another person or entity occurs where the holders of the Company's outstanding voting equity securities immediately prior to such merger or consolidation hold less than a majority of the issued and outstanding voting equity securities of the successor immediately following such transaction or (d) any sale by the holders of the Company's outstanding voting equity securities where such holders do not continue to hold at least a majority of the Company's issued and outstanding voting equity securities immediately following the consummation of such transaction. The Merger, upon completion, will trigger a success fee of $350,000 (See Note 14—*Subsequent Events*). The Warrant to purchase 36,000 shares (subject to adjustment) of the Company's common stock dated as of July 31, 2018 between the Company and SVB remains outstanding and exercisable in accordance with its terms.

The Company was required to reserve $15,000 in cash related to a SVB commercial credit card arrangement in February 2019 upon the prepayment of the Term Loan. The cash reserve is reflected as restricted cash in the accompanying condensed balance sheets.

**5. Commitments and Contingencies**

***Pfizer License Agreement***

In April 2011, the Company and Pfizer Inc. (Pfizer) entered into an exclusive license agreement for the clinical product candidate gemcabene, which was subsequently amended and restated in August 2018 (as so amended, the Pfizer Agreement). In exchange for this worldwide exclusive license to certain patent rights and a non-exclusive royalty bearing right and license to certain related data to make, use, develop, commercialize, import and otherwise exploit the clinical product candidate gemcabene, the Company agreed to certain milestone and royalty payments on future sales (See Note 6—*License Agreement)*. As of June 30, 2019, there was sufficient uncertainty with regard to both the outcome of the clinical trials and the ability to obtain sufficient funding to support any of the cash milestone payments under the Pfizer Agreement, and as such, no liabilities were recorded related to the Pfizer Agreement.

***Other Agreements***

In May 2016, the Company entered into a non-cancellable lease agreement for its headquarters location, commencing in the third quarter of 2016. The initial term of the agreement is 3 years with an initial monthly base rent of approximately $8,400 and increasing to approximately $8,900 during the last year of the lease term. The total rent expense under this operating classified lease was $26,000 during the three month periods ended June 30, 2019 and 2018, respectively, and $52,000 during the six month periods ended June 30, 2019 and 2018, respectively.

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**5. Commitments and Contingencies (Continued)**

Supplemental cash flow information related to the operating lease was as follows (in thousands):

| | Six months ended June 30, 2019 | Six months ended June 30, 2018 |
|---|---|---|
| Cash paid for amounts included in the measurement of lease liability: | | |
| Operating cash flows from operating leases | $ 53 | $ 52 |
| Right-of -use assets obtained in exchange for lease obligations: | | |
| Operating leases | $ 70 | $ — |

Supplemental balance sheet information related to the operating lease was as follows (in thousands, except weighted average data):

| | As of June 30, 2019 | As of December 31, 2018 |
|---|---|---|
| Right-of-use assets | $18 | $68 |
| Lease liability | $18 | $70 |
| Weighted average remaining lease term | 0.2 years | 0.7 years |
| Weighted average discount rate | 5.5% | 5.5% |

Maturity of the lease liability was as follows (in thousands):

| | As of June 30, 2019 |
|---|---|
| 2019 (period from July 1, 2019 to December 31, 2019) | $ 18 |
| Total lease payments | $ 18 |
| Less imputed interest | — |
| Total | $ 18 |

***Other Commitments and Contingencies***

In the ordinary course of business, from time to time, the Company may be subject to a broad range of claims and legal proceedings that relate to contractual allegations, patent infringement, employment-related matters and other claims. The Company establishes accruals for matters which it believes that losses are probable and can be reasonably estimated. Although it is not possible to predict with certainty the outcome of these matters, the Company is of the opinion that the ultimate resolution of these matters will not have a material adverse effect on its results of operations or financial position.

**6. License Agreement**

The Company is party to the Pfizer Agreement, as amended on August 2, 2018, for a worldwide exclusive license to certain patent rights and a non-exclusive royalty bearing right and license to certain related data to make, use, develop, commercialize, import and otherwise exploit the clinical product candidate gemcabene. Pfizer retains the right to make, use and import gemcabene solely for internal research purposes.

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**6. License Agreement (Continued)**

In partial exchange for the rights granted by Pfizer, the Company agreed to issue shares of its common stock to Pfizer representing 15% of the Company's fully diluted capital at the close of its first arms-length Series A financing, which occurred on March 31, 2015.

The Company agreed to make milestone payments totaling up to $37 million upon the achievement of certain milestones, including the first new drug application (or its foreign equivalent) in any country, regulatory approval in each of the United States, Europe and Japan, the first anniversary of the first regulatory approval in any country, and upon achieving certain aggregate sales levels of gemcabene. Future milestone payments under the Pfizer Agreement, if any, are not expected to begin for at least several years and extend over a number of subsequent years.

The Company also agreed to pay Pfizer tiered royalties on a country-by-country basis based upon the annual amount of net sales, as specified in the Pfizer Agreement, until the later of: (a) five (5) years after the first commercial sale in such country; (b) the expiration of all regulatory or data exclusivity for gemcabene in such country; and (c) the expiration or abandonment of the last valid claim of the licensed patents, including any patent term extensions or supplemental protection certificates in such country (collectively, the Royalty Term). Under the Pfizer Agreement, the Company is obligated to use commercially reasonable efforts to develop and commercialize gemcabene.

On March 31, 2015, upon the closing of the Series A preferred stock financing, the Company issued 675,250 shares of its common stock, at a fair market value of $0.9 million, to Pfizer in connection with the first equity payment, pursuant to which Pfizer became the owner of more than 5% of the Company's capital stock. The transaction was recorded as acquired in-process research and development expenses based on the fair value of the common shares issued since no processes or activities that would constitute a "business" were acquired and none of the rights and underlying assets acquired had alternative future uses or reached a stage of technological feasibility. None of the other milestone or royalty payments were triggered as of June 30, 2019.

The Pfizer Agreement will expire upon expiration of the last Royalty Term. On expiration (but not earlier termination), the Company will have a perpetual, exclusive, fully paid-up, royalty-free license under the licensed patent rights and related data to make, use, develop, commercialize, import and otherwise exploit the clinical product candidate gemcabene. Either party may terminate the Pfizer Agreement for the other party's material breach following a cure period or immediately upon certain insolvency events relating to the other party. Pfizer may immediately terminate the Pfizer Agreement in the event that (i) the Company or any of its affiliates or sublicenses contests or challenges, or supports or assists any third party to contest or challenge, Pfizer's ownership of or rights in, or the validity, enforceability or scope of any of the patents licensed under the Pfizer Agreement or (ii) the Company or any of its affiliates or sublicensees fails to achieve the first commercial sale in at least one country by April 16, 2024. Furthermore, upon termination of the Pfizer Agreement by Pfizer for any of the foregoing reasons, the Company grants Pfizer a non-exclusive, fully paid-up, royalty free, worldwide, transferrable, perpetual and irrevocable license to use any intellectual property rights arising from the development or commercialization of gemcabene by the Company and any trademarks identifying gemcabene and agrees to transfer regulatory filings and approvals to Pfizer or permit Pfizer to cross-reference and rely on such regulatory filings and approvals for gemcabene. The Company may terminate the License Agreement for convenience upon 90 days' written notice and payment of an early termination fee.

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**7. Stockholders' Equity**

***Common Stock***

The Company had 14,265,411 shares of its common stock issued and outstanding as of June 30, 2019 and December 31, 2018. Voting, dividend and liquidation rights of the holders of the common stock are subject to the Company's articles of incorporation, corporate bylaws and underlying shareholder agreements.

In the first quarter of 2018, the Company completed the Follow-On Offering of 3,592,858 shares of common stock which includes 450,000 shares of common stock purchased by the underwriters upon the partial exercise of their overallotment option, at the public offering price of $7.00 per share. The Company received net proceeds of approximately $23.1 million after deducting underwriting discounts and commissions and offering expenses. The costs incurred related to the Follow-On Offering were $2.1 million.

***Warrants***

During the three and six month periods ending June 30, 2019 and 2018, no warrants were exercised. As of June 30, 2019 and December 31, 2018, warrants to purchase 1,014,204 shares of common stock were outstanding.

***Dividend Rights***

Common stockholders are entitled to receive dividends at the sole discretion of the board of directors of the Company. There have been no dividends declared on common stock as of June 30, 2019.

***Voting Rights***

The holders of common stock are entitled to one vote for each share of common stock along with all other classes and series of stock of the Company on all actions to be taken by the stockholders of the Company, including actions that would amend the certificate of incorporation of the Company to increase the number of authorized shares of the common stock.

***Liquidation Rights***

In the event of any liquidation, dissolution, or winding-up of the Company, the holders of common stock shall be entitled to share in the remaining assets of the Company available for distribution post preferential distributions made to preferred stockholders, if any.

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**8. Share-Based Compensation**

Share-based compensation expense was included in general and administrative and research and development expenses as follows in the accompanying condensed statements of comprehensive loss (in thousands):

| | Three Months Ended June 30, | | Six Months Ended June 30, | |
|---|---|---|---|---|
| | 2019 | 2018 | 2019 | 2018 |
| General and administrative | $ 275 | $ 436 | $ 559 | $ 1,147 |
| Research and development | 163 | 473 | 352 | 782 |
| Total share-based compensation | $ 438 | $ 909 | $ 911 | $ 1,929 |

***Stock Options***

In April 2015, the Company adopted a 2015 Equity Incentive Plan (the 2015 Plan) under which 320,615 shares of the Company's common stock were reserved for issuance to employees, directors and consultants. The 2015 Plan permits the grant of incentive and non-statutory stock options, appreciation rights, restricted stock, restricted stock units, performance stock and cash awards, and other stock-based awards.

*Amended and Restated 2015 Equity Incentive Plan*

In April 2016, the Company's board of directors approved the Company's amended and restated 2015 Plan (the A&R 2015 Plan). The Company's stockholders also approved the A&R 2015 Plan in April 2016 and the A&R 2015 Plan became effective immediately upon the execution and delivery of the underwriting agreement related to the IPO. The A&R 2015 Plan provides for the grant of stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance-based stock awards and other forms of equity awards, as well as performance cash awards.

Under the A&R 2015 Plan, the number of shares of common stock reserved for issuance thereunder automatically increases on January 1st of each year, for a period of 10 years commencing on January 1, 2017 and ending on (and including) January 1, 2026, to an amount equal to 20% of the Company's fully-diluted shares as of December 31st of the preceding calendar year. Notwithstanding the foregoing, the Company's board of directors may act prior to January 1st of a given year to provide that there will be no January 1st increase in the shares reserved for such year, or that the increase in shares reserved for such year will be less than would have otherwise been allowed under the provision. Effective January 1, 2019, 501,001 shares were added to the A&R 2015 Plan under the share reserve provision. As a result, the total shares available under the A&R 2015 Plan for future issuance was 1,030,583 shares as of June 30, 2019.

*Inducement Plan*

In September 2016, the Company's board of directors approved the Company's Inducement Plan (the Inducement Plan). The Company initially reserved 300,000 shares of its common stock to be used exclusively for grants of awards to individuals who were not previously employees or directors of the Company, as an inducement material to the individual's entry into employment with the Company within the meaning of Rule 5635(c)(4) of the NASDAQ Listing Rules. The Plan was approved by the

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**8. Share-Based Compensation (Continued)**

Company's board of directors without stockholder approval pursuant to Rule 5635(c)(4), and the terms and conditions of the Plan are substantially similar to the Company's stockholder-approved A&R 2015 Plan. The total shares available under the Inducement Plan for future issuance was 249,479 shares as of June 30, 2019.

*2016 Employee Stock Purchase Plan*

In April 2016, the Company's board of directors approved the 2016 Employee Stock Purchase Plan (the ESPP) in order to enable eligible employees to purchase shares of the Company's common stock at a discount following the effective date of the IPO. The Company's stockholders also approved the ESPP in April 2016 and the ESPP became effective immediately upon the execution and delivery of the underwriting agreement related to the IPO. The Company initially reserved 150,000 shares of common stock for issuance under the ESPP. As of June 30, 2019, no shares have been purchased under the ESPP.

During the three months ended June 30, 2019 and 2018, the Company granted an aggregate of zero and 350,000 stock options, respectively, and zero and 822,000 stock options during the six months ended June 30, 2019 and 2018, respectively, under the A&R 2015 Plan and the Inducement Plan to its officers, directors, employees and consultants, generally vesting over a four-year period. The weighted average grant date fair value for option shares granted during the three and six months ended June 30, 2018 was $3.57 and $5.07 per share, respectively.

The Company measures the fair value of stock options to employees, consultants and directors on the date of grant with service-based and performance-based vesting criteria using the Black-Scholes option pricing model and market-based vesting criteria using a Monte Carlo simulation model. The Company does not have sufficient history to support a calculation of volatility and expected term. As such, the Company has used a weighted-average volatility considering the volatilities of several guideline companies.

For purposes of identifying similar entities, the Company considered characteristics such as industry, length of trading history, and stage of life cycle. The assumed dividend yield was based on the Company's expectation of not paying dividends in the foreseeable future. The average expected life of the options was determined based on the mid-point between the vesting date and the end of the contractual term according to the "simplified method" as described in Staff Accounting Bulletin 110. The risk-free interest rate is determined by reference to implied yields available from U.S. Treasury securities with a remaining term equal to the expected life assumed at the date of grant. The Company records forfeitures when they occur.

The weighted-average assumptions used in the Black-Scholes option-pricing and Monte Carlo simulation models are as follows:

| | Three Months Ended June 30, | | Six Months Ended June 30, | |
|---|---|---|---|---|
| | 2019 | 2018 | 2019 | 2018 |
| Expected stock price volatility | — | 66.0% | — | 66.3% |
| Expected life of options (years) | — | 5.7 | — | 5.8 |
| Expected dividend yield | — | 0% | — | 0% |
| Risk free interest rate | — | 2.9% | — | 2.7% |

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**8. Share-Based Compensation (Continued)**

During the three months ended June 30, 2019 and 2018, 87,021 and 127,062 stock options vested, respectively, and 166,133 and 307,410 stock options vested during the six months ended June 30, 2019 and 2018, respectively. During the three months ended June 30, 2019 and 2018, 70,800 and 111,389 stock options were forfeited, respectively, and 77,800 and 114,889 stock options were forfeited during the six months ended June 30, 2019 and 2018, respectively. As of June 30, 2019, 2,722,973 stock options were outstanding, 1,930,014 stock options were vested and 1,280,062 shares in the aggregate were available for future issuance under the A&R 2015 and Inducement Plans.

Unrecognized share-based compensation cost for stock options issued under the A&R 2015 Plan and the Inducement Plan was $2.8 million as of June 30, 2019. The unrecognized share-based expense is expected to be recognized over a weighted average period of 1.1 years.

**9. Net Loss Per Common Share**

Basic earnings or loss per share of common stock is computed by dividing net loss by the weighted average number of shares of common stock outstanding during the period. Diluted earnings or loss per share of common stock is computed similarly to basic earnings or loss per share except the weighted average shares outstanding are increased to include additional shares from the assumed exercise of any common stock equivalents, if dilutive. The Company's stock options and warrants are considered common stock equivalents while outstanding for this purpose. Diluted earnings are computed utilizing the treasury method for stock options and warrants. No incremental common stock equivalents were included in calculating diluted loss per share because such inclusion would be anti-dilutive given the net loss reported for the three and six months ended June 30, 2019 and 2018. The following table sets forth the computation of basic and diluted loss per share for the three and six months ended June 30, 2019 and 2018 (in thousands, except share and per share amounts):

| | Three Months Ended | | Six Months Ended | |
|---|---|---|---|---|
| | 2019 | 2018 | 2019 | 2018 |
| Numerator: | | | | |
| Net loss attributed to common stockholders | $ (2,920) | $ (6,678) | $ (6,721) | $ (13,902) |
| Denominator: | | | | |
| Basic and diluted weighted average common shares outstanding | 14,265,411 | 14,232,313 | 14,265,411 | 13,340,941 |
| Basic and diluted net loss per share | $ (0.20) | $ (0.47) | $ (0.47) | $ (1.04) |

The following potential common shares were not considered in the computation of diluted net loss per share as their effect would have been anti-dilutive during the three and six months ended June 30, 2019 and 2018:

| | Three Months Ended | | Six Months Ended | |
|---|---|---|---|---|
| | 2019 | 2018 | 2019 | 2018 |
| Stock options | 2,722,973 | 3,164,838 | 2,722,973 | 3,164,838 |
| Warrants | 1,014,204 | 978,204 | 1,014,204 | 978,204 |

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**10. Fair Value Measurements**

The Company follows accounting guidance that emphasizes that fair value is a market-based measurement, not an entity specific measurement. Fair value is defined as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date." Fair value measurements are defined on a three level hierarchy:

**Level 1 inputs:** Unadjusted quoted prices for identical assets or liabilities in active markets;

**Level 2 inputs:** Quoted prices for similar assets and liabilities in active markets, quoted prices in markets that are not active, or inputs which are observable, weather directly or indirectly, for substantially the full term of the asset or liability;

**Level 3 inputs:** Unobservable inputs that reflect the Company's own assumptions about the assumptions market participants would use in pricing the asset or liability in which there is little, if any, market activity for the asset or liability at the measurement date.

As of June 30, 2019 and December 31, 2018, the fair values of cash and cash equivalents, restricted cash, other assets, accounts payable, accrued liabilities and other liabilities approximated their carrying values because of the short-term nature of these assets or liabilities. The estimated fair value of the Company's Term Loan while outstanding was based on amortized cost which was deemed to approximate fair value. There were no transfers between fair value hierarchy levels during the three and six months ended June 30, 2019 and 2018.

There were no instruments measured on a recurring fair value basis as of June 30, 2019 and December 31, 2018. In addition, no financial instruments were measured on a non-recurring basis for any of the periods presented.

**11. Income Taxes**

The effective tax rate for the three and six month periods ended June 30, 2019 and 2018 was zero percent. As a result of the analysis of all available evidence as of June 30, 2019 and December 31, 2018, the Company recorded a full valuation allowance on its net deferred tax assets. Consequently, the Company reported no income tax benefit for the three and six month periods ended June 30, 2019 and 2018. If the Company's assumptions change and the Company believes that it will be able to realize these deferred tax assets, the tax benefits relating to any reversal of the valuation allowance on deferred tax assets will be recognized as a reduction of future income tax expense. If the assumptions do not change, each period the Company could record an additional valuation allowance on any increases in the deferred tax assets.

**12. Defined Contribution Plan**

The Company adopted a 401(k) defined contribution plan on September 5, 2017, effective as of January 1, 2017, for all employees over age 21. Employees can defer up to 100% of their compensation through payroll withholdings into the plan subject to federal law limits. Effective January 1, 2018, the Company began matching contributions on deferrals at 100% of deferrals up to 3% of one's contributions and 50% on deferrals over 3%, but not exceeding 5% of one's contributions in order to satisfy certain non-discrimination tests required by the Internal Revenue Code. Employee contributions and any employer matching contributions made to satisfy certain non-discrimination tests required by the Internal Revenue Code are 100% vested upon contribution. Discretionary employer matches vest

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**12. Defined Contribution Plan (Continued)**

over a six-year period beginning on the second anniversary of an employee's date of hire. The amount of matching contributions made during the three month periods ended June 30, 2019 and 2018 was $19,000 and $29,000, respectively, and $47,000 and $54,000 during the six month periods ended June 30, 2019 and 2018, respectively.

**13. Related Party Transactions**

In the first quarter of 2018, in connection with an underwritten public offering of 3,592,858 shares of common stock, the offering included 14,286 shares sold to 1 officer, for aggregate proceeds totaling approximately $0.1 million and 71,429 shares sold to 1 investor who is an affiliate of 1 officer and board member, for proceeds totaling approximately $0.5 million.

**14. Subsequent Events**

***License Agreement with Beijing SL***

On July 23, 2019, the Company entered into a License and Collaboration Agreement (the "Beijing SL Agreement") with Beijing SL Pharmaceutical Co., Ltd. ("Beijing SL"), pursuant to which the Company granted Beijing SL an exclusive royalty-bearing license to research, develop, manufacture and commercialize pharmaceutical products comprising, as an active ingredient, gemcabene in mainland China, Hong Kong, Macau and Taiwan (each, a "region," and collectively, the "Territory").

Under the terms of the Beijing SL Agreement, Beijing SL will be responsible, at its expense, for developing and commercializing products containing gemcabene (each, a "Licensed Product") in the Territory, with certain assistance from the Company. To the extent mutually agreed to in writing, the Company and Beijing SL will collaborate on the Phase 3 clinical trial for homozygous familial hypercholesterolemia or other clinical trials with the Company as the sponsor designed to enroll patients both inside and outside the Territory (a "Global Study"), but Beijing SL will be responsible, at its expense, for the conduct of any Global Study to the extent solely in the Territory, subject to the Company's final decision making authority, and the Company will be responsible, at its expense, for the conduct of any Global Study to the extent solely outside of the Territory. Under a territory development plan, the parties shall develop Licensed Products with respect to the Territory. Beijing SL will be responsible for development activities, including non-clinical and clinical studies directed at obtaining regulatory approval of the Licensed Product in the Territory. Beijing SL has agreed to use commercially reasonable efforts to commercialize the Licensed Products for each indication that receives regulatory approval in the Territory and shall prepare and present a commercialization plan that shall be subject to approval by the joint steering committee.

Pursuant to the Beijing SL Agreement, Beijing SL will make an upfront gross payment of $2.5 million to the Company within 45 days of the effective date of the Beijing SL Agreement. Additionally, with respect to each Licensed Product, the Company will be eligible to receive (i) payments for specified developmental and regulatory milestones (including submission of a new drug application to China's National Medical Product Administration, dosing of the first patient in a phase 3 clinical trial in mainland China and regulatory approval for the first and each additional indication of a Licensed Product in the Territory) totaling up to $6 million in the aggregate and (ii) payments for specified global net sales milestones of up to $20 million in the aggregate multiplied by the ratio of the net sales of a Licensed Product sold by Beijing SL in the Territory divided by the global net sales of a

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**14. Subsequent Events (Continued)**

Licensed Product, which net sales milestone payments are payable once, upon the first achievement of such milestone.

Beijing SL will also be obligated to pay the Company tiered royalties ranging from the mid-teens to twenty percent on the net sales of all Licensed Products in the Territory until the latest of (a) the date on which any applicable regulatory exclusivity with respect to such Licensed Product expires in such region, (b) the expiration or abandonment of the last valid patent claim or joint patent claim covering such Licensed Product in each region and (c) the fifth anniversary of the first commercial sale of such Licensed Product in such region (the "Royalty Term"). Future milestone payments under the Beijing SL Agreement, if any, are not expected to begin for at least one year and will extend over a number of subsequent years. The Company cannot determine the date on which Beijing SL's potential royalty payment obligations to the Company would expire because Beijing SL has not yet developed any Licensed Products under the Beijing SL Agreement and therefore the Company cannot at this time identify the date of the first commercial sale or the periods of any regulatory exclusivity or patent claims with respect to any Licensed Product.

On a Licensed Product-by-Licensed Product and region-by-region basis upon the expiration of the Royalty Term, the license granted to Beijing SL shall be deemed perpetual, fully paid-up and royalty free with respect to such Licensed Product in such region. Either party may terminate the Agreement (x) with written notice for the other party's material breach following a cure period or (y) if the other party becomes subject to certain insolvency proceedings. In addition, the Company may terminate the agreement in its entirety if Beijing SL or its affiliates or sublicensees commence a proceeding challenging the validity, enforceability or scope of any of the Company's patents.

To the extent rights granted to Beijing SL under the Beijing SL Agreement are controlled by the Company pursuant to the Pfizer Agreement between Gemphire and Pfizer, such rights are subject to the terms and conditions of such agreement with Pfizer, and Beijing SL has agreed to comply with such terms and conditions.

The Beijing SL Agreement contemplates that Beijing SL and the Company shall, no later than 60 days following the effective date of the Beijing SL Agreement, negotiate in good faith and execute a clinical supply agreement and, no later than twelve months prior to the anticipated date of the first commercial sale of a Licensed Product, if any, negotiate in good faith and execute a commercial supply agreement, pursuant to which Beijing SL shall purchase from the Company, and the Company shall use commercially reasonable efforts to supply, gemcabene or Licensed Product for clinical or commercial purposes, as applicable, until manufacturing and regulatory transfers are complete.

Each of the Company and Beijing SL has agreed to indemnify the other party against certain losses and expenses relating to the development or commercialization of a Licensed Product by the indemnifying party, the negligence or willful misconduct of the indemnifying party or its directors, officers, employees or agents or a breach of the indemnifying party's representations, warranties or covenants.

***Merger Agreement with NeuroBo***

On July 24, 2019, the Company entered into the Merger Agreement with NeuroBo pursuant to which, the Company's wholly owned subsidiary, Merger Sub, will merge with and into NeuroBo, with NeuroBo surviving as a wholly owned subsidiary of the Company, in an all-stock transaction. Subject to

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**14. Subsequent Events (Continued)**

the terms and conditions of the Merger Agreement, at the effective time of the Merger (the "Effective Time"), (a) each share of NeuroBo common stock outstanding immediately prior to the Effective Time (excluding shares held as treasury stock, held by NeuroBo and dissenting shares) will be converted into the right to receive shares of Gemphire common stock equal to the Exchange Ratio described below; and (b) each outstanding NeuroBo stock option that has not previously been exercised prior to the Effective Time will be assumed by the Company.

Under the exchange ratio formula in the Merger Agreement (the "Exchange Ratio"), upon the closing of the Merger, on a pro forma basis and based upon the number of shares of common stock expected to be issued in the Merger, former Company security holders immediately prior to the Merger are expected to own approximately 4.06% of the combined company and former NeuroBo security holders immediately prior to the Merger are expected to own approximately 95.94% of the combined company, on a fully-diluted basis and assuming that the Company has the minimum net cash amount of negative $3 million at closing and that NeuroBo raises the minimum required amount of $24,240,000 in its Series B Preferred Stock financing described below. The ownership percentages are subject to adjustment to the extent that the Company's net cash at the Effective Time is negative or to reflect aggregate gross proceeds received by NeuroBo in its financing before the closing of the Merger above the minimum required amount and up to and including $50 million.

Consummation of the Merger is subject to certain closing conditions, including, among other things, approval by the Company's stockholders and NeuroBo's stockholders, the continued listing of the common stock on the Nasdaq Capital Market, the conversion of all NeuroBo preferred stock and NeuroBo convertible notes into NeuroBo common stock and satisfaction by the Company of a minimum parent cash amount of negative $3 million at closing.

Prior to signing the Merger Agreement, NeuroBo entered into subscription agreements with investors for a Series B Preferred Stock financing for approximate gross proceeds of $24,240,000, the minimum required amount under the Merger Agreement, and may enter into additional subscription agreements and receive additional proceeds between signing and closing of the Merger.

The Merger Agreement contains certain termination rights for both the Company and NeuroBo, and further provides that, upon termination of the Merger Agreement under specified circumstances, either party may be required to pay the other party a termination fee of $1,000,000, or in some circumstances reimburse the other party's expenses up to a maximum of $500,000.

Following the closing of the Merger, NeuroBo's Chief Executive Officer, John L. Brooks III, will serve as Chief Executive Officer of the Company and the board of directors of the Company will be six directors, consisting of five directors designated by NeuroBo and Steven Gullans, the Company's current President and Chief Executive Officer.

***Contingent Value Rights Agreement***

At the Effective Time, the Company will enter into a Contingent Value Rights Agreement (the "CVR Agreement"). Pursuant to the Merger Agreement and the CVR Agreement, for each share of the Company's common stock held, stockholders of record as of immediately prior to the Effective Time will receive one contingent value right ("CVR") entitling such holders to receive in the aggregate, 80% of the Gross Consideration (as defined in the CVR Agreement which contemplates the post-Merger combined company's prior retention of an aggregate of $500,000) less other Permitted

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**14. Subsequent Events (Continued)**

Deductions (each as defined in the CVR Agreement) received during the 15-year period after the closing of the Merger (the "CVR Term") from the grant, sale or transfer of rights to the Company's product candidate gemcabene (other than a grant, sale or transfer of rights involving a sale or disposition of the post-Merger combined company) that is entered into during the 10-year period after the closing of the Merger or pursuant to the Beijing SL Agreement, but not including the $2.5 million upfront gross payment pursuant to the Beijing SL Agreement. Under the CVR Agreement, the combined company agreed to commit $1 million to support the further development of gemcabene through the quarter ending March 31, 2020, to be funded following execution of the Beijing SL Agreement and the receipt by the Company of the $2.5 million upfront gross payment payable under the Beijing SL Agreement. The CVRs are not transferable, except in certain limited circumstances, will not be certificated or evidenced by any instrument, will not accrue interest and will not be registered with the SEC or listed for trading on any exchange. The CVR Agreement will be effective prior to the closing of the Merger and will continue in effect until the later of the end of the CVR Term and the payment of all amounts payable thereunder, unless and until earlier terminated upon termination of the Merger Agreement.

***Change in Control Payments and Severance Awards***

On July 24, 2019, the Company entered into amendments to the employment agreements (the "Amendments") of Dr. Steven Gullans, Chief Executive Officer and President, Dr. Charles Bisgaier, Chief Scientific Officer and Chairman of the board of directors, and Seth Reno, Chief Commercial Officer (the "Executives") to reduce the cash severance obligation owed to each Executive in connection with the termination of their employment upon the closing of the Merger. Pursuant to the Amendments, if the Merger is completed, each of Dr. Gullans, Dr. Bisgaier and Mr. Reno will receive a lump sum cash payment within thirty days after the effective date of the Merger in an amount equal to $75,000, $330,000 and $297,536, respectively, subject to a reduction for withholding tax, in lieu of the cash compensation such Executives would otherwise be entitled to receive in connection with a termination following a change in control pursuant to such Executives' employment agreements.

In connection with the Executives agreeing to the Amendments, on July 24, 2019, the Company issued each of Dr. Gullans, Dr. Bisgaier and Mr. Reno a restricted stock award representing 300,000, 100,000 and 100,000 shares, respectively, of common stock. The restricted stock awards were made pursuant to Restricted Stock Grant Notices and Restricted Stock Agreements (the "Award Agreements"). Such Award Agreements provide that such shares shall fully vest immediately prior to the Effective Time, provided that the Executive has executed and delivered to the Company a release and waiver of claims and such release is not subsequently revoked. The Company shall automatically reacquire for no consideration all unvested shares upon the earliest to occur of (i) the Executive's termination of continuous service (unless such termination results from the completion of the Merger prior to March 31, 2020) or (ii) March 31, 2020 if the Merger has not been completed. The Award Agreements provide that the holders shall have all rights and privileges of a holder of common stock, including for purposes of voting and receiving dividends.

Grants were also made to the Company's non-employee directors (45,000 shares of restricted stock in the aggregate) and employees (62,000 shares of restricted stock in the aggregate) pursuant to Award Agreements on July 24, 2019. The non-employee director Award Agreements do not require the execution and delivery of a release and waiver of claims.

**Gemphire Therapeutics Inc.**

**Notes to Condensed Financial Statements (unaudited) (Continued)**

**14. Subsequent Events (Continued)**

On July 23, 2019, the Company's non-employee directors agreed to waive payment of the cash retainer for the remainder of 2019 otherwise payable to such directors pursuant to the Company's non-employee director compensation policy.

***Nasdaq Compliance***

On August 8, 2019, the Company received a notice from the Nasdaq Stock Market ("Nasdaq") stating that, for the last 30 consecutive business days, the closing bid price for the Company's common stock was below the $1.00 per share minimum bid price requirement for continued listing on The Nasdaq Capital Market under Nasdaq Listing Rule 5550(a)(2) (the "Minimum Bid Price Rule"). In accordance with Nasdaq Listing Rule 5810(c)(3)(A), the Company has 180 calendar days, or until February 4, 2020, to regain compliance with the Minimum Bid Price Rule. To regain compliance with the Minimum Bid Price Rule, the closing bid price of the Company's common stock must be at least $1.00 per share for a minimum of 10 consecutive business days at any time during this 180-day period. If the Company regains compliance with the Minimum Bid Price Rule, Nasdaq will provide the Company with written confirmation and will close the matter.

If the Company does not regain compliance with the rule by February 4, 2020, the Company may be eligible for an additional 180 calendar day compliance period. To qualify, the Company would need to meet the continued listing requirement for market value of publicly held shares and all other applicable standards for initial listing on The Nasdaq Capital Market, with the exception of the bid price requirement, and would need to provide written notice of its intention to cure the deficiency during the second compliance period by effecting a reverse stock split, if necessary. However, if it appears to Nasdaq that the Company will not be able to cure the deficiency, or if the Company is not eligible for a second compliance period, Nasdaq will notify the Company that its common stock will be subject to delisting. In the event of such a notification, the Company may appeal the determination, but there can be no assurance Nasdaq would grant the Company's request for continued listing.

The notice has no immediate impact on the listing of the Company's common stock, which will continue to trade on The Nasdaq Capital Market under the symbol "GEMP". The Company believes that the completion of its proposed Merger with NeuroBo, including the reverse stock split of the Company's common stock contemplated by the Merger Agreement, will address the Nasdaq compliance matter described above. The Company will continue to monitor the bid price of its common stock and consider various other options available to it if its common stock does not trade at a level that is likely to regain compliance. See Part II "Other Information," Item 1A "Risk Factors" of this Quarterly Report on Form 10-Q.

**NeuroBo Pharmaceuticals, Inc.**

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**Report of Independent Registered Public Accounting Firm**

Stockholders' and Board of Directors
NeuroBo Pharmaceuticals, Inc.
Boston, MA 02115

**Opinion on the Consolidated Financial Statements**

We have audited the accompanying consolidated balance sheets of NeuroBo Pharmaceuticals, Inc. and subsidiary (the "Company") as of December 31, 2017 and 2018, the related consolidated statements of operations and comprehensive loss, redeemable convertible preferred stock and stockholders' equity (deficit), and cash flows for the period from inception (July 25, 2017) to December 31, 2017 and for the year ended December 31, 2018, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2017 and 2018, and the results of its operations and its cash flows for the period from inception (July 25, 2017) to December 31, 2017 and for the year ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

**The Company's Ability to Continue as a Going Concern**

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As described in Note 1 to the consolidated financial statements, the Company has suffered recurring losses from operations and has a net capital deficiency that raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

**Basis for Opinion**

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the

overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ BDO USA, LLP

We have served as the Company's auditor since 2019.
Boston, Massachusetts
August 30, 2019 except for the subsequent events in Note 10, as to which the dates are October 10, 2019 and October 29, 2019

**NeuroBo Pharmaceuticals, Inc.**

**Consolidated Balance Sheets**

**(In thousands, except share and par value data)**

| | December 31, 2017 | December 31, 2018 | June 30, 2019 (unaudited) |
|---|---|---|---|
| **Assets** | | | |
| **Current assets:** | | | |
| Cash | $ 50 | $ 2,845 | $ 24,588 |
| Prepaid research and development expenses | — | 929 | — |
| Other current assets | 3 | 34 | 30 |
| **Total current assets** | 53 | 3,808 | 24,618 |
| Property and equipment, net | — | 3 | 27 |
| Other long-term assets | — | 9 | 42 |
| **Total assets** | $ 53 | $ 3,820 | $ 24,687 |
| **Liabilities, Redeemable Convertible Preferred Stock, and Stockholders' Equity (Deficit)** | | | |
| **Current liabilities:** | | | |
| Accounts payable | $ — | $ 170 | $ 769 |
| Accrued expenses | 28 | 49 | 331 |
| **Total current liabilities** | 28 | 219 | 1,100 |
| Convertible notes payable | — | 118 | 134 |
| Other long-term liabilities | — | 23 | 35 |
| **Total liabilities** | 28 | 360 | 1,269 |
| **Commitments and contingencies (Notes 8 & 9)** | | | |
| **Redeemable convertible preferred stock** (Series A and B), $.0001 par value; 0 shares authorized, issued and outstanding as of December 31, 2017, 4,200,000 shares authorized, issued and outstanding at December 31, 2018, and 12,000,000 shares authorized and 7,230,000 issued and outstanding as of June 30, 2019 (unaudited); aggregate liquidation preference of $0, $16,800 and $41,040 as of December 31, 2017, December 31, 2018 and June 30, 2019 (unaudited), respectively | — | 16,746 | 40,921 |
| **Stockholders' equity (deficit):** | | | |
| Common stock, $.0001 par value; 50,000,000 shares authorized and 2,000,000 issued and outstanding as of December 31, 2017, 45,800,000 shares authorized and 4,520,000 shares issued and outstanding as of December 31, 2018, and 50,000,000 shares authorized and 4,520,000 shares issued and outstanding as of June 30, 2019 (unaudited) | — | — | — |
| Additional paid-in capital | 50 | 2,266 | 2,405 |
| Accumulated other comprehensive income | — | 2 | 11 |
| Accumulated deficit | (25) | (15,554) | (19,919) |
| **Total stockholders' equity (deficit)** | 25 | (13,286) | (17,503) |
| **Total liabilities, redeemable convertible preferred stock, and stockholders' equity (deficit)** | $ 53 | $ 3,820 | $ 24,687 |

See accompanying notes to the consolidated financial statements.

**NeuroBo Pharmaceuticals, Inc.**

**Consolidated Statements of Operation and Comprehensive Loss**

**(In thousands, except share and per share data)**

| | Cumulative from July 25, 2017 (Date of Inception) to December 31, 2017 | Year Ended December 31, 2018 | Six Months Ended June 30, 2018 | Six Months Ended June 30, 2019 |
|---|---|---|---|---|
| | | | (unaudited) | |
| **Operating expenses:** | | | | |
| Research and development | $ — | $ 13,881 | $ 8,953 | $ 2,748 |
| General and administrative | 25 | 1,605 | 345 | 1,590 |
| **Total operating expenses** | 25 | 15,486 | 9,298 | 4,338 |
| **Loss from operations** | (25) | (15,486) | (9,298) | (4,338) |
| **Other income (expense), net:** | | | | |
| Interest expense | — | (41) | (17) | (29) |
| Other income (expense), net | — | (2) | 1 | 2 |
| **Total other income (expense), net** | — | (43) | (16) | (27) |
| **Net loss** | $ (25) | $ (15,529) | $ (9,314) | $ (4,365) |
| **Net loss per share, basic and diluted** | $ (0.02) | $ (4.18) | $ (3.21) | $ (0.97) |
| **Weighted average common shares outstanding, basic and diluted** | 1,137,500 | 3,719,123 | 2,904,972 | 4,520,000 |
| **Comprehensive loss:** | | | | |
| Net loss | $ (25) | $ (15,529) | $ (9,314) | $ (4,365) |
| **Other comprehensive income (loss):** | | | | |
| Foreign currency translation adjustment | — | 2 | (2) | 9 |
| **Total other comprehensive income (loss)** | — | 2 | (2) | 9 |
| **Comprehensive loss** | $ (25) | $ (15,527) | $ (9,316) | $ (4,356) |

See accompanying notes to the consolidated financial statements.

**NeuroBo Pharmaceuticals, Inc.**

**Consolidated Statements of Redeemable Convertible Preferred Stock and Stockholders' Equity (Deficit)**

**(In thousands, except share data)**

| | Redeemable Convertible Preferred Stock | | Common Stock | | Additional Paid-in Capital | Accumulated Other Comprehensive Income | Accumulated Deficit | Total Stockholders' Equity (Deficit) |
|---|---|---|---|---|---|---|---|---|
| | Shares | Amount | Shares | Amount | | | | |
| **Balance at July 25, 2017 (Date of Inception)** | — | $ — | — | $ — | $ — | $ — | $ — | $ — |
| Issuance of common stock | | | 2,000,000 | — | 50 | | | 50 |
| Net loss | | | | | | | (25) | (25) |
| **Balance at December 31, 2017** | — | — | 2,000,000 | — | 50 | — | (25) | 25 |
| Issuance of Series A redeemable convertible preferred stock, net of issuance costs of $54 | 4,200,000 | 16,746 | | | | | | — |
| Beneficial conversion feature related to convertible notes | | | | | 401 | | | 401 |
| Issuance of common stock in exchange for in process research and development | | | 2,520,000 | — | 1,815 | | | 1,815 |
| Foreign currency translation adjustment | | | | | | (2) | | (2) |
| Net loss | | | | | | | (9,314) | (9,314) |
| **Balance at June 30, 2018 (unaudited)** | 4,200,000 | 16,746 | 4,520,000 | — | 2,266 | (2) | (9,339) | (7,075) |
| Foreign currency translation adjustment | | | | | | 4 | | 4 |
| Net loss | | | | | | | (6,215) | (6,215) |
| **Balance at December 31, 2018** | 4,200,000 | 16,746 | 4,520,000 | — | 2,266 | 2 | (15,554) | (13,286) |
| Issuance of Series B redeemable convertible preferred stock, net of issuance costs of $65 | 3,030,000 | 24,175 | | | | | | — |
| Stock-based compensation expense | | | | | 139 | | | 139 |
| Foreign currency translation adjustment | | | | | | 9 | | 9 |
| Net loss | | | | | | | (4,365) | (4,365) |
| **Balance at June 30, 2019 (unaudited)** | 7,230,000 | $ 40,921 | 4,520,000 | $ — | $ 2,405 | $ 11 | $ (19,919) | $ (17,503) |

See accompanying notes to the consolidated financial statements.

**NeuroBo Pharmaceuticals, Inc.**

**Consolidated Statement of Cash Flows**

**(In thousands)**

| | Cumulative from July 25, 2017 (Date of Inception) to December 31, 2017 | Year Ended December 31, 2018 | Six Months Ended June 30, 2018 | Six Months Ended June 30, 2019 |
|---|---|---|---|---|
| | | | (unaudited) | |
| **Cash flows from operating activities:** | | | | |
| Net loss | (25) | (15,529) | (9,314) | (4,365) |
| Adjustments to reconcile net loss to net cash used in operating activities: | | | | |
| Depreciation expense | — | — | — | 1 |
| In process research and development acquired for common stock | — | 1,815 | 1,815 | — |
| Non-cash interest expense | — | 41 | 17 | 29 |
| Stock-based compensation expense | — | — | — | 139 |
| Changes in operating assets and liabilities: | | | | |
| Prepaid expenses and other current assets | (3) | (960) | 1 | 933 |
| Other long-term assets | — | (9) | (24) | (34) |
| Accounts payable | — | 170 | 48 | 599 |
| Accrued expenses | 28 | 21 | (12) | 282 |
| **Net cash used in operating activities** | — | (14,451) | (7,469) | (2,416) |
| **Cash flows from investing activities:** | | | | |
| Purchases of property and equipment | — | (3) | (3) | (25) |
| **Net cash used in investing activities** | — | (3) | (3) | (25) |
| **Cash flows from financing activities:** | | | | |
| Proceeds from issuance of common stock | 50 | — | — | — |
| Gross proceeds from issuance of Series A redeemable convertible preferred stock | — | 16,800 | 16,800 | — |
| Gross proceeds from issuance of Series B redeemable convertible preferred stock | — | — | — | 24,240 |
| Issuance costs for preferred stock | | (54) | (54) | (65) |
| Proceeds from issuance of convertible notes | — | 500 | 500 | |
| **Net cash provided by financing activities** | 50 | 17,246 | 17,246 | 24,175 |
| **Net increase in cash** | 50 | 2,792 | 9,774 | 21,734 |
| **Effect of exchange rate changes on cash** | — | 3 | (1) | 9 |
| **Cash, beginning of period** | — | 50 | 50 | 2,845 |
| **Cash, end of period** | 50 | 2,845 | 9,823 | 24,588 |
| **Supplemental disclosure of noncash items:** | | | | |
| Beneficial conversion feature related to convertible notes | | 401 | 401 | |
| In process research and development acquired for common stock | | 1,815 | 1,815 | |

See accompanying notes to the consolidated financial statements.

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

## 1. Organization and Summary of Significant Accounting Policies

***Description of Business***

NeuroBo Pharmaceuticals, Inc. and subsidiary (the "Company" or "NeuroBo") is a clinical-stage biotechnology company focused on developing novel, plant-based pharmaceuticals to treat neurodegenerative disorders. NeuroBo is currently focused on the development of a treatment for Painful Diabetic Neuropathy, or PDN, with its lead product candidate, NB-01, expected to commence Phase 3 clinical development as a first-line, disease modifying treatment for PDN in the first quarter of 2020. NeuroBo's second product candidate, NB-02, is in development for the treatment of Alzheimer's Disease ("AZ") and other tauopathies, which are neurodegenerative diseases associated with the pathological accumulation of a protein known as tau in the human brain.

The Company was incorporated in the State of Delaware on July 25, 2017 but commenced significant operations in 2018. Those operations have consisted principally of performing research and development activities, clinical development and raising capital. The Company's activities are subject to significant risks and uncertainties, including failing to secure additional funding before sustainable revenues and profit from operations are achieved.

The consolidated financial statements of the Company include its fully owned South Korean subsidiary, NeuroBo LTD. All significant intercompany accounts and transactions have been eliminated in the preparation of the consolidated financial statements.

***Liquidity and Going Concern***

From its inception through June 30, 2019 (unaudited), the Company has devoted substantially all of its efforts to drug discovery and development and conducting clinical trials. The Company has a limited operating history and the sales and income potential of the Company's business and market are unproven. Successful transition to attaining profitable operations is dependent upon achieving a level of revenues adequate to support the Company's cost structure. As of December 31, 2018, and June 30, 2019 (unaudited), the Company had $2.8 million and $24.6 million, respectively, in cash. The Company has experienced net losses and negative cash flows from operating activities since its inception and had an accumulated deficit of $15.6 million and $19.9 million, respectively, as of December 31, 2018 and June 30, 2019 (unaudited).

To date, the Company has raised capital principally through the issuance of convertible notes and private placements of redeemable convertible preferred stock. The Company has raised a total of $16.8 million from the issuance of Series A redeemable convertible preferred stock through December 31, 2018, and $24.2 million from the issuance of Series B redeemable convertible preferred stock in May and June 2019 (Note 4).

The Company will need to continue to raise a substantial amount of funds until it is able to generate revenues to fund its development activities. As a result, the Company believes that there is substantial doubt about its ability to continue as a going concern for one year after the date these consolidated financial statements are issued.

The determination as to whether the Company can continue as a going concern contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. The Company

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**1. Organization and Summary of Significant Accounting Policies (Continued)**

expects to continue to incur net losses and negative cash flows from operations into the foreseeable future. Successful transition to attaining profitable operations is dependent upon achieving a level of revenues adequate to support the Company's cost structure. The Company has incurred net losses since inception and has relied on its ability to fund its operations through debt and equity financings. These conditions raise substantial doubt about the Company's ability to continue as a going concern. The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern and do not include any adjustments that might result from the outcome of this uncertainty. This basis of accounting contemplates the recovery of the Company's assets and the satisfaction of liabilities in the normal course of business.

The Company believes that its existing cash will be sufficient to fund its operations into the third quarter of 2020. The Company plans to continue to fund its losses from operations and capital funding needs through a combination of equity offerings, debt financings, or other sources, potentially including collaborations, licenses and other similar arrangements. There can be no assurance that the Company will be able to obtain any sources of financing on acceptable terms, or at all. To the extent that the Company can raise additional funds by issuing equity securities, the Company's stockholders may experience significant dilution. Any debt financing, if available, may involve restrictive covenants that impact the Company's ability to conduct its business.

***Basis of Presentation***

The accompanying financial statements were prepared in conformity with accounting principles generally accepted in the United States of America (U.S. GAAP).

On August 11, 2019 the Company's board of directors and stockholders approved an amendment to the restated certificate of incorporation to effect a ten thousand-for-one (10,000-for-1) stock split of the Company's common stock, options for common stock, and convertible preferred stock. The par value and the authorized shares of the common and convertible preferred stock were adjusted accordingly as a result of the stock split. All issued and outstanding common stock, options for common stock, and convertible preferred stock, as well as the exercise price of each option for common stock and the conversion price for convertible preferred stock, have been retroactively adjusted to reflect this stock split for all periods presented. All of the share and per share amounts have been adjusted, on a retroactive basis, to reflect this ten thousand-for-one (10,000-for-1) stock split.

***Use of Estimates***

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of expenses during the reporting period. The most significant estimates in Company's consolidated financial statements relate to accrued expenses, valuation allowance for deferred tax assets, and the fair value of stock-based compensation. The Company bases its estimates on historical experience and on various other assumptions that are believed to be reasonable, the results of which form the basis for making judgements about the carrying

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**1. Organization and Summary of Significant Accounting Policies (Continued)**

values of assets and liabilities. Actual results could differ from those estimates. Changes in estimates are reflected in reported results in the period in which they become known.

***Concentration of Credit Risk***

Financial instruments, which potentially subject the Company to concentration of credit risk, consist primarily of cash deposits. The Company maintains deposits in a federally insured financial institution in excess of federally insured limits. The Company's foreign subsidiary holds cash in its local currency in a foreign bank. The Company has not experienced any losses on deposits since inception.

***Unaudited Interim Financial Information***

The accompanying interim consolidated balance sheet as of June 30, 2019, the consolidated statements of operations and cash flows for the six months ended June 30, 2018 and 2019 and the consolidated statement of convertible preferred stock and stockholders' equity (deficit) for the six months ended June 30, 2018 and June 30, 2019 and the related consolidated footnote disclosures are unaudited. In management's opinion, the unaudited interim financial statements have been prepared on the same basis as the audited financial statements and include all adjustments, which include only normal recurring adjustments, necessary for the fair presentation of the Company's financial position as of June 30, 2019 and its results of operations and cash flows for the six months ended June 30, 2018 and 2019 in accordance with U.S. GAAP. The results for the six months ended June 30, 2019 are not necessarily indicative of the results expected for the full fiscal year or any other interim period.

***Fair Value of Financial Instruments***

The accounting guidance defines fair value, establishes a consistent framework for measuring fair value, and expands disclosure for each major asset and liability category measured at fair value on either a recurring or nonrecurring basis. Fair value is defined as an exit price representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, the accounting guidance establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value as follows:

Level 1: Observable inputs, such as quoted prices in active markets

Level 2: Inputs, other than the quoted prices in active markets that are observable either directly or indirectly

Level 3: Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions which reflect those that a market participant would use

Financial assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. The Company's assessment of the significance of a particular input to the fair value measurement requires judgment and may affect the valuation of fair value assets and liabilities and their placement within the fair value hierarchy levels.

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**1. Organization and Summary of Significant Accounting Policies (Continued)**

In determining the fair value of its financial instruments, the Company considers the source of observable market data inputs, liquidity of the instrument, the credit risk of the counterparty to the contract, and its risk of nonperformance. In the case fair value is not observable, for the items subject to fair value measurements, the Company applies valuation techniques deemed the most appropriate under the U.S. GAAP guidance based on the nature of the assets and liabilities being measured.

The Company classifies time deposits and other investments that are highly liquid and have maturities of three months or less at the date of purchase as cash equivalents. The carrying amounts approximate fair value due to the short maturities of these instruments. As of December 31, 2017, December 31, 2018 and June 30, 2019, the Company did not have any investments classified as cash equivalents.

The carrying amounts of prepaid expenses, accounts payable, and accrued liabilities are reasonable estimates of their fair value because of the short maturity of these items.

***Property and Equipment, Net***

Property and equipment, which consist of computers and software, are stated at cost less accumulated depreciation. Depreciation is calculated using the straight-line method over the estimated useful lives of the assets (generally three to five years).

***Impairment of Long-Lived Assets***

Long-lived assets consist of property and equipment. An impairment loss is recorded if and when events and circumstances indicate that assets might be impaired and the undiscounted cash flows estimated to be generated by those assets are less than the carrying amount of those assets. The Company has not recognized any impairment losses through June 30, 2019.

***Foreign Currency Translation***

The foreign subsidiary uses the local currency as the functional currency. The Company translates the assets and liabilities of its foreign operation into U.S. dollars based on the rates of exchange in effect as of the balance sheet date. Expenses are translated into U.S. dollars using average exchange rates for each period. The resulting adjustments from the translation process are included in accumulated other comprehensive loss in the accompanying consolidated balance sheets.

Certain transactions of the Company are settled in foreign currency and are thus translated to U.S. dollars at the rate of exchange in effect at the end of each month. Gains (losses) resulting from the translation are included in other income (expense) in the accompanying consolidated statements of operations and comprehensive loss.

***Patent Costs***

Costs related to filing and pursuing patent applications are expensed as incurred, as recoverability of such expenditures is uncertain. These costs are included in general and administrative expenses.

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**1. Organization and Summary of Significant Accounting Policies (Continued)**

***Research and Development Costs***

NeuroBo expenses research and development costs to operations as incurred. NeuroBo recognizes external development costs based on an evaluation of the progress toward completion of specific tasks using information provided to NeuroBo by its service providers. This process involves reviewing open contracts and purchase orders, communicating with its personnel to identify services that have been performed on its behalf, and estimating the level of service performed and the associated cost incurred for the service when NeuroBo has not yet been invoiced or otherwise notified of actual costs. Nonrefundable advance payments for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses. Such amounts are recognized as an expense when the goods have been delivered or the services have been performed, or when it is no longer expected that the goods will be delivered, or the services rendered. Upfront payments, milestone payments and annual maintenance fees under license agreements are expensed in the period in which they are incurred.

Program-specific licenses and asset acquisitions of compound technology, intellectual property rights and know-how for which there is no alternative future uses are expensed immediately as in-process research and development costs.

***Commitments and Contingencies***

The Company recognizes a liability for loss contingencies when it believes it is probable a liability has occurred, and the amount can be reasonably estimated. If some amount within a range of loss appears at the time to be a better estimate than any other amount within the range, the Company accrues that amount. When no amount within the range is a better estimate than any other amount the Company accrues the minimum amount in the range. The Company also discloses when there is a contingency that is reasonably possible but the Company is unable to estimate a loss or range of loss. The Company has not recorded any such liabilities as of December 31, 2017, December 31, 2018 and June 30, 2019.

***Income Taxes***

The Company uses the asset and liability method of accounting for income taxes. Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax base. Deferred tax assets and liabilities are measured using tax rates expected to be in effect in years when those differences reverse. Valuation allowances are established when necessary to reduce deferred tax assets where, based upon the available evidence, the Company concludes that it is more-likely-than-not that the deferred tax assets will not be realized. In evaluating its ability to recover deferred tax assets, the Company considers all available positive and negative evidence, including its operating results, ongoing tax planning and forecasts of future taxable income on a jurisdiction-by-jurisdiction basis. Because of the uncertainty of the realization of deferred tax assets, the Company has recorded a full valuation allowance against its deferred tax assets.

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**1. Organization and Summary of Significant Accounting Policies (Continued)**

Reserves are provided for tax benefits for which realization is uncertain. Such benefits are only recognized when the underlying tax position is considered more-likely-than-not to be sustained on examination by a taxing authority, assuming they possess full knowledge of the position and facts. Interest and penalties related to uncertain tax positions are recognized in the provision of income taxes; however, currently management is not aware of any uncertain tax positions and, accordingly, has no interest or penalties related to uncertain income tax benefits.

***Comprehensive Loss***

Comprehensive loss is comprised of net loss and other comprehensive income or loss. Comprehensive loss includes net loss as well as other changes in stockholders' equity (deficit) that result from transactions and economic events other than those with stockholders. Comprehensive loss currently consists of net loss and changes in foreign currency translation adjustments.

***Net Loss Per Share***

Basic net loss per share is computed by dividing the net loss by the weighted-average number of common shares outstanding for the period, without consideration for potentially dilutive securities if their effect is antidilutive. Diluted net loss per share is computed by dividing the net loss by the weighted average number of shares of common stock and dilutive common stock equivalents outstanding for the period determined using the treasury- stock and if-converted methods. Dilutive common stock equivalents are comprised of convertible preferred stock, convertible notes payable, and options outstanding under the Company's stock option plan. For all periods presented, there is no difference in the number of shares used to calculate basic and diluted shares outstanding as inclusion of the potentially dilutive securities would be antidilutive.

Potentially dilutive securities not included in the calculation of diluted net loss per share because to do so would be anti-dilutive are as follows (in common stock equivalent shares):

| | As of December 31, | | As of June 30, | |
|---|---|---|---|---|
| | 2017 | 2018 | 2018 | 2019 |
| | | | (unaudited) | |
| Series A preferred stock | — | 4,200,000 | 4,200,000 | 4,200,000 |
| Series B preferred stock | — | — | — | 3,030,000 |
| Convertible promissory notes | — | 1,307,020 | 1,275,514 | 1,338,014 |
| Outstanding stock options | — | — | — | 840,000 |
| Total | — | 5,507,020 | 5,475,514 | 9,408,014 |

There were no common stock equivalents as of December 31, 2017.

***Segment Reporting***

Operating segments are identified as components of an enterprise about which separate discrete financial information is available for evaluation by the chief operating decision-maker in making

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**1. Organization and Summary of Significant Accounting Policies (Continued)**

decisions regarding resource allocation and assessing performance. The Company views its operations and manages its business in one operating segment.

***Stock-Based Compensation***

Stock-based compensation expense represents the cost of the grant date fair value of employee, non-employee, officer, and director stock option grants, estimated in accordance with the applicable accounting guidance, recognized on a straight-line basis over the vesting period. The vesting period generally approximates the expected service period of the awards. For stock awards for which vesting is subject to performance-based milestones, the expense is recorded over the remaining service period after the point when the achievement of the milestone is probable, or the performance condition has been achieved. The Company accounts for stock options to both employees and non-employees using the fair value approach. Forfeitures are recognized and accounted for as they occur.

The fair value of stock options is estimated using a Black-Scholes valuation model on the date of grant. This method requires certain assumptions be used as inputs, such as the fair value of the underlying common stock, expected term of the option before exercise, expected volatility of the Company's common stock, expected dividend yield, and a risk-free interest rate. The Company has limited historical stock option activity and therefore estimates the expected term of stock options granted to employees using the simplified method, which represents the average of the contractual term of the stock option and its weighted-average vesting period. For non-employee options granted, the Company estimates the expected term of the option to be equal to the contractual term of the option based on the accounting guidance. For non-employee options the Company believes that the fair value of these awards is more reliably measurable than the fair value of the services rendered. The expected volatility of stock options is based upon the historical volatility of several publicly traded companies in similar stages of clinical development. The Company has historically not declared or paid any dividends and does not currently expect to do so in the foreseeable future. The risk-free interest rates used are based on the U.S. Treasury yield in effect at the time of grant for zero-coupon U.S. treasury notes with maturities approximately equal to the expected term of the stock options.

***Fair Value of Common Stock***

In the absence of a public trading market, and as a development stage company with no significant revenues, the Company believes that it is appropriate to consider a range of factors to determine the fair value of the common stock at each grant date. In determining the fair value of its common stock, the Company uses methodologies, approaches, and assumptions consistent with the American Institute of Certified Public Accountants' (AICPA) Audit and Accounting Practice Aid Series: *Valuation of Privately Held Company Equity Securities Issued as Compensation* (the "AICPA Practice Guide"). The valuations of NeuroBo common stock were prepared using a hybrid method, which used market approaches to estimate the enterprise value of NeuroBo. The hybrid method is a probability-weighted expected return method ("PWERM"), where the equity value in one or more of the scenarios is calculated using an option pricing method, or ("OPM"). The PWERM is a scenario-based methodology that estimates the fair value of common stock based upon an analysis of future values for NeuroBo, assuming various outcomes. The common stock value is based on the probability-weighted present

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**1. Organization and Summary of Significant Accounting Policies (Continued)**

value of expected future investment returns considering each of the possible outcomes available as well as the rights of each class of stock. The future value of the common stock under each outcome is discounted back to the valuation date at an appropriate risk-adjusted discount rate and probability weighted to arrive at an indication of value for the common stock. A discount for lack of marketability of the common stock is then applied to arrive at an indication of value for the common stock. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceeded the value of the preferred stock liquidation preferences at the time of the liquidity event, such as a strategic sale or a merger. In addition, the Company considered various objective and subjective factors, along with input from an independent third-party valuation firm. The factors included (1) the achievement of technical and operational milestones by the Company; (2) the status of strategic relationships with collaborators; (3) the significant risks associated with the Company's stage of development; (4) capital market conditions for life science companies, particularly similarly situated, privately held, early-stage life science companies; (5) the Company's available cash, financial condition, and results of operations; (6) the most recent sales of the Company's preferred stock to the extent they were with outside parties; and (7) the preferential rights of the outstanding preferred stock.

***Recently-Issued Accounting Pronouncements***

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board ("FASB") or other standard setting bodies that are adopted by the Company as of the specified effective date. Unless otherwise discussed, the Company believes that the impact of recently issued standards that are not yet effective will not have a material impact on its consolidated financial position or results of operations upon adoption.

In June 2018, the FASB issued Accounting Standards Update ("ASU") No. 2018-07, *Compensation—Stock Compensation (Topic 718) Improvements to Nonemployee Share-Based Payment Accounting* ("ASU 2018-07"). This new guidance expands the scope of ASC 718 to include share-based payments granted to nonemployees in exchange for goods or services used or consumed in an entity's own operations and supersedes the guidance in ASC 505-50. Equity-classified nonemployee awards are measured on the grant date, rather than on the earlier of (1) the performance commitment date or (2) the date at which the nonemployee's performance is complete. Awards to nonemployees are measured by estimating the fair value of the equity instruments to be issued, rather than the fair value of the goods or services received or the fair value of the equity instruments issued, whichever can be measured more reliably. Entities may use the expected term to measure nonemployee options or elect to use the contractual term as the expected term, on an award-by-award basis. The Company adopted ASU 2018-07 in the first quarter of 2019. There was no impact on the Company's financial statements as a result of the adoption of this guidance.

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**1. Organization and Summary of Significant Accounting Policies (Continued)**

In February 2016, the FASB issued ASU No. 2016-02, which establishes new accounting and disclosure requirements for leases. ASU No. 2016-02 requires lessees to classify most leases as either finance or operating leases and to initially recognize a lease liability and right-of-use asset ("ASU 2016-02"). The Company adopted ASU 2016-02 in the first quarter of 2019 using the effective date approach to recognize and measure leases as of the adoption date. The Company has elected to utilize the available practical expedient to not separate lease components from non-lease components as well as the package of practical expedients that allows the Company not to reassess (1) whether any expired or existing contracts as of the adoption date are or contain a lease, (2) lease classification for any expired or existing leases as of the adoption date and (3) initial direct costs for any existing leases as of the adoption date. The Company also made an accounting policy election to recognize lease payment as an expense on a straight-line basis over the lease term for the short-term leases. Due to the short-term nature of the Company's lease arrangements at the adoption date and June 30, 2019, the impact of the adoption on the consolidated financial statements for the six month period ended June 30, 2019 was immaterial.

**2. Balance Sheet Details**

Other current assets consist of the following (in thousands):

| | As of December 31, | | As of June 30, 2019 (unaudited) |
|---|---|---|---|
| | 2017 | 2018 | |
| Prepaid insurance | $ — | $ 12 | $ 4 |
| Prepaid rent | — | — | 10 |
| Other prepaid expenses | 3 | 22 | 16 |
| | $ 3 | $ 34 | $ 30 |

Accrued expenses consist of the following (in thousands):

| | As of December 31, | | As of June 30, 2019 (unaudited) |
|---|---|---|---|
| | 2017 | 2018 | |
| Accrued professional services | $ 28 | $ 12 | $ 16 |
| Accrued compensation costs | — | 20 | 98 |
| Accrued external research and development costs | — | — | 200 |
| Other accrued expenses | — | 17 | 17 |
| | $ 28 | $ 49 | $ 331 |

**3. Convertible Promissory Notes**

In February 2018, the Company received a total of $500,000 from the issuance of convertible promissory notes (the "Convertible Notes") from the Company's current stockholders. The Convertible Notes have an original maturity date of December 31, 2022. The lenders have the option to convert all

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**3. Convertible Promissory Notes (Continued)**

or the then-unpaid note balance including principal and accrued but unpaid interest into common stock, at a conversion price of $0.40 per share after the earlier of (A) immediately upon the closing of a firmly underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of common stock for the account of the Company in the United States of America or similar registration in the Republic of Korea, or (B) January 1, 2020. On October 23, 2019, the lenders have entered into agreements with NeuroBo providing that the Convertible Notes will be converted into NeuroBo common stock, effective immediately upon the closing of the merger, at a conversion price equal to $0.40 per share. The Convertible Notes accrue interest at a rate of 5.00% per annum. The Company recorded interest expense of $23,000 for the year ended December 31, 2018 and $13,000 for the six months ended June 30, 2019.

On October 15, 2019, JK Biopharma Solutions, Inc. entered into assignment agreements with The E&Healthcare Investment Fund II, The E&Healthcare Investment Fund No.6 and The E&Healthcare Investment Fund No.7 to transfer $200,000 of the $400,000 worth of Convertible Notes owned by JK Biopharma Solutions, Inc. Pursuant to the assignment agreements, The E&Healthcare Investment Fund II received $116,000 worth of Convertible Notes, The E&Healthcare Investment Fund No.6 received $32,000 worth of Convertible Notes and The E&Healthcare Investment Fund No.7 received $52,000 worth of Convertible Notes. Assuming the Convertible Notes are converted on December 31, 2019, the transferred portion of the Convertible Notes held by The E&Healthcare Investment Fund II would be convertible into 293,059 shares of NeuroBo common stock, the transferred portion of the Convertible Notes held by The E&Healthcare Investment Fund No.6 would be convertible into 80,844 shares of NeuroBo common stock and the transferred portion of the Convertible Notes held by The E&Healthcare Investment Fund No.7 would be convertible into 131,371 shares of NeuroBo common stock.

The fair value of the common stock, as determined using an option pricing model consistent with the AICPA Practice Guide, was in excess of the conversion price of the Convertible Notes. Accordingly, the Company recorded a $401,000 beneficial conversion feature, based on the intrinsic value of the conversion feature, which resulted in a debt discount with a corresponding amount to additional paid in capital. The debt discount is being amortized over the life of the note using the effective interest method as an additional interest expense. The Company recorded interest expense of $18,000 for the year ended December 31, 2018 and $7,000 and $16,000 for the six months ended June 30, 2018 and June 30, 2019 related to the amortization of the debt discount.

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**4. Redeemable Convertible Preferred Stock ("Preferred Stock")**

The authorized, issued and outstanding shares of Preferred Stock as of June 30, 2019 consist of the following (in thousands, except share amounts):

| | Preferred Shares Authorized | Preferred Shares Issued and Outstanding | Carrying Value | Liquidation Preference | Common Stock Issuable Upon Conversion |
|---|---|---|---|---|---|
| Series A Preferred Stock | 4,200,000 | 4,200,000 | $ 16,746 | $ 16,800 | 4,200,000 |
| Series B Preferred Stock | 7,800,000 | 3,030,000 | 24,175 | $ 24,240 | 3,030,000 |
| | 12,000,000 | 7,230,000 | $ 40,921 | $ 41,040 | 7,230,000 |

The authorized, issued and outstanding shares of Preferred Stock as of December 31, 2018 consist of the following (in thousands, except share amounts):

| | Preferred Shares Authorized | Preferred Shares Issued and Outstanding | Carrying Value | Liquidation Preference | Common Stock Issuable Upon Conversion |
|---|---|---|---|---|---|
| Series A Preferred Stock | 4,200,000 | 4,200,000 | $ 16,746 | $ 16,800 | 4,200,000 |
| | 4,200,000 | 4,200,000 | $ 16,746 | $ 19,835 | 4,200,000 |

There were no authorized, issued and outstanding shares of Preferred Stock as of December 31, 2017.

The Preferred Stock is classified outside of stockholders' equity (deficit) because the shares contain certain redemption features that are not solely within the control of the Company.

**Description of Series A and Series B Preferred Stock**

In April 2018, the Company sold and issued in a private placement 4,200,000 shares of Series A redeemable convertible preferred stock (the "Series A Preferred Stock") at $4.00 per share and during May and June 2019, the Company sold and issued in a private placement 3,030,000 shares of Series B redeemable convertible preferred stock (the "Series B Preferred Stock") at $8.00 per share, collectively (the "Preferred Stock").

The Company's Preferred Stock has the following characteristics:

***Dividends***

The holders of Preferred Stock, in preference to the holders of Common Stock, shall be entitled to receive cumulative dividends at the annual rate of 1% of the original issue price. Such dividends shall be payable only when and if declared by the Company's Board of Directors out of funds that are legally available, and cumulative. There have been no dividends declared by the board through June 30, 2019.

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**4. Redeemable Convertible Preferred Stock ("Preferred Stock") (Continued)**

***Liquidation***

Holders of Series A Preferred Stock and Series B Preferred Stock are entitled to receive a liquidation preference at the rate of $4.00 per share and $8.00 per share, respectively, plus all declared and unpaid dividends. Liquidation payments to the holders of Preferred Stock have priority and are made in preference to any payments to the holders of Common Stock. After full payment of the liquidation preference to the holders of the Preferred Stock, the remaining assets, if any, will be distributed to the holders of the Preferred Stock and Common Stock, pro rata based upon the number of shares held by each other.

***Conversion Rights***

The shares of Preferred Stock are convertible into an equal number of shares of common stock, at the option of the holder, subject to certain anti-dilution adjustments. The conversion rate for the Preferred Stock is determined by dividing the original issue price, as adjusted for stock splits, by the conversion price. The conversion price is initially the original issue price but is subject to adjustment for issuance of options or convertible securities, stock splits and combinations, dividends, in the form of common stock or other securities, issued to common stock holders, and mergers or reorganization. The conversion rate at December 31, 2018 and June 30, 2019 for the Preferred Stock was 1:1.

Each share of Series A Preferred Stock is automatically converted into common stock, (A) immediately upon the closing of a firmly underwritten public offering pursuant to an effective registration statement in either the United States of America or any other country, (B) immediately upon the closing of a reverse merger of the Company (or a similar transaction effected by the Company) with an entity which is listed or the parent of which is listed on a securities exchange in the United States of America or on any other internationally recognized securities exchange, or (C) April 9, 2028.

Each share of Series B Preferred Stock is automatically converted into common stock, (A) immediately upon the closing of a firmly underwritten public offering pursuant to an effective registration statement in either the United States of America or any other country, (B) immediately upon the closing of a reverse merger of the Company (or a similar transaction effected by the Company) with an entity which is listed or the parent of which is listed on a securities exchange in the United States of America or on any other internationally recognized securities exchange, or (C) May 30, 2029.

In connection with the private placement of the Series B Preferred Stock in May 2019, the Company added the provision for each share of Series A Preferred Stock to be automatically converted into common stock immediately upon the closing of a reverse merger. The change in conversion terms was considered to be a modification of the Series A Preferred Stock with no material impact on the carrying value.

***Redemption Rights***

Commencing April 9, 2021, and on each anniversary of such date, the holders of the majority of the then-outstanding shares of Series A Preferred Stock shall have the right to cause the Company to

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**4. Redeemable Convertible Preferred Stock ("Preferred Stock") (Continued)**

redeem the-then outstanding shares of Series A Preferred Stock, in whole or in part, at a redemption price per share equal to the Series A Preferred Stock original issue price, plus all declared unpaid dividends, and a six percent (6%) premium of the Series A Preferred Stock original issue price, compounded annually from the Series A Preferred Stock original issue date to the redemption date. Considering the nature of the redemption terms, it was deemed not probable that the Series A Preferred Stock will become redeemable at each of the cut off dates through June 30, 2019. As such, no accretion adjustment to the initial carrying cost was recorded.

Commencing May 30, 2022, and on each anniversary of such date, the holders of the majority of the then-outstanding shares of Series B Preferred Stock shall have the right to cause the Company to redeem the-then outstanding shares of Series B Preferred Stock, in whole or in part, at a redemption price per share equal to the Series B Preferred Stock original issue price, plus all declared unpaid dividends, and a six percent (6%) premium of the Series B Preferred Stock original issue price, compounded annually from the Series B Preferred Stock original issue date to the redemption date.

The foregoing redemption rights shall be available only to the extent: (a) the redemption is permitted by Delaware law governing distributions to stockholders, and (b) the aggregate redemption of the shares to be redeemed shall not exceed the Company's retained earnings for the calendar year immediately preceding the applicable redemption date, as calculated in accordance to accounting principles generally accepted in the United States of America.

***Voting***

The holder of each share of Preferred Stock is entitled to one vote for each share of common stock into which it would convert and to vote as one class with the common stockholders on all matters.

***Director***

The holders of Series A Preferred Stock, exclusively and as a separate class, are entitled to elect one (1) director of the Company. The holders of Series B Preferred Stock, exclusively and as a separate class, are entitled to elect two (2) directors of the Company.

**5. Common Stock**

As of December 31, 2018, and June 30, 2019, 45,800,000 and 50,000,000 shares, respectively, of Commons Stock were authorized for issuance and 4,520,000 shares were issued and outstanding. The voting, dividend, and liquidation rights of the holders of the Common Stock are subject to and qualified by the rights, powers, and preferences of the holders of the Preferred Stock. The holders of the Common Stock are entitled to one vote for each share of common stock held at all meetings of stockholders.

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**5. Common Stock (Continued)**

**Common Stock Reserved for Future Issuance**

Common stock reserved for future issuance is as follows:

| | As of December 31, 2017 | As of December 31, 2018 | As of June 30, 2019 (unaudited) |
|---|---|---|---|
| Shares reserved for conversion of Series A Preferred Stock outstanding | — | 4,200,000 | 4,200,000 |
| Shares reserved for conversion of Series B Preferred Stock outstanding | — | — | 3,030,000 |
| Shares reserved for conversion of convertible preferred notes | — | 1,307,020 | 1,338,014 |
| Shares reserved for exercise of outstanding stock options under the 2018 Stock Plan | — | — | 840,000 |
| Shares reserved for future issuance under the 2018 Stock Plan | — | 1,002,702 | 468,801 |
| | — | 6,509,722 | 9,876,815 |

**6. Stock-Based Compensation**

**2018 Stock Plan**

In December 2018, the Company adopted the NeuroBo Pharmaceuticals, Inc. 2018 Stock Plan (the "Plan"). The Plan provides for the grant of stock options, restricted stock and other equity awards of the Company's common stock to employees, officers, consultants, and directors. Options expire within a period of not more than ten years from the date of grant. Options were granted to three non-employee consultants in January 2019 with both service and performance conditions. The options with service conditions vest quarterly over a period between one-year and fifteen months.

The maximum aggregate number of shares of stock to be reserved under the Plan is ten percent (10%) of the outstanding shares of common stock, at any given point in time, on a fully diluted basis. As of December 31, 2018, 1,002,702 shares were allocated to the Plan and all shares were reserved for future issuance. As of June 30, 2019, 1,308,801 shares were allocated to the Plan; 840,000 shares were reserved for the exercise of outstanding stock options and 468,801 shares were reserved for future issuance.

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**6. Stock-Based Compensation (Continued)**

A summary of the Company's stock option activity is as follows (in thousands, expect share and per share data):

| | Number of Shares | Weighted Average Exercise Price | Weighted Average Contractual Term (in years) | Aggregate Intrinsic Value (in thousands) |
|---|---|---|---|---|
| Outstanding as of December 31, 2018 | — | — | — | — |
| Granted | 840,000 | $ 0.72 | 9.6 | $ 2,157 |
| Exercised | — | | | |
| Forfeited | — | | | |
| Outstanding as of June 30, 2019 (unaudited) | 840,000 | $ 0.72 | 9.6 | $ 2,157 |
| Options vested or expected to vest as of June 30, 2019 (unaudited) | 840,000 | $ 0.72 | 9.6 | $ 2,157 |
| Options exercisable as of June 30, 2019 (unaudited) | 137,500 | $ 0.72 | 9.6 | $ 353 |

The aggregate intrinsic values of options outstanding, vested and exercisable were calculated as the difference between the exercise price of the options and the estimated fair value of the Company's common stock of $3.29 per share as of June 30, 2019.

The fair values of the stock options granted under the Plan during 2019 were estimated at the date of grant using the Black-Scholes option-pricing model with the following assumptions:

| | Six Months Ended June 30, 2019 (unaudited) |
|---|---|
| Expected volatility | 75.00% |
| Risk-free interest rate | 2.75% |
| Expected dividend yield | —% |
| Expected life (in years) | 10.00 |

***Risk-free interest rate.*** The risk-free interest rate is based on the U.S. Treasury yield in effect at the time of grant for zero coupon U.S. Treasury notes with maturities approximately equal to the expected term of the awards.

***Expected volatility.*** Since the Company is not yet a public company and does not have a trading history for its common stock, the expected volatility assumption is based on volatilities of a peer group of similar companies whose share prices are publicly available. The peer group was developed based on companies in the biotechnology industry. The Company will continue to apply this process until enough historical information regarding the volatility of its own stock price becomes available.

***Expected term.*** The expected term represents the period that options are expected to be outstanding. Because the Company does not have historical exercise behavior, it determines the expected life assumption for employee grants using the simplified method which is an average of the contractual term of the option and its vesting period. For non-employee option grants, the Company

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**6. Stock-Based Compensation (Continued)**

estimates the expected term of the option to be equal to the contractual term of the option based on the accounting guidance.

***Expected dividend yield.*** The Company bases the expected dividend yield assumption on the fact that it has never paid cash dividends and has no present intention to pay cash dividends, therefore, the Company used an expected dividend yield of zero.

Stock-based compensation expense recognized for all equity awards has been reported in the consolidated statements of operations as follows (in thousands):

| | As of June 30, 2019 (unaudited) |
|---|---|
| Research and development expenses | $ 55 |
| General and administrative expenses | 84 |
| | $ 139 |

No stock options were issued to employees for the six months ended June 30, 2019 so the table above includes only stock-based compensation expense for non-employees. The weighted-average grant date fair value of option grants for the six months ended June 30, 2019 was $0.57 per share. As of June 30, 2019, the total compensation expense related to non-vested options not yet recognized was $0.1 million and is expected to be recognized over a weighted average term of 0.6 years.

**7. Income Tax**

Loss before provision for taxes for the period from inception (July 25, 2017) to December 31, 2017 and for the year ended December 31, 2018 consisted of the following:

| | Cumulative from July 25, 2017 (Date of Inception) to December 31, 2017 | Year Ended December 31, 2018 |
|---|---|---|
| Domestic | $ 25 | $ 15,313 |
| Foreign | — | 216 |
| Total | $ 25 | $ 15,529 |

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**7. Income Tax (Continued)**

The components of income tax provision (benefit) consisted of the following for the period from inception (July 25, 2017) to December 31, 2017 and for the year ended December 31, 2018 :

| | Cumulative from July 25, 2017 (Date of Inception) to December 31, 2017 | Year Ended December 31, 2018 |
|---|---|---|
| **Current** | | |
| US | $ — | $ — |
| Foreign | — | — |
| **Total current tax provision (benefit)** | — | — |
| **Deferred** | | |
| US | $ (7) | $ (4,283) |
| Foreign | — | (54) |
| **Total deferred tax provision (benefit)** | (7) | (4,337) |
| Change in valuation US | 7 | 4,283 |
| Change in valuation Foreign | — | 54 |
| **Total deferred tax provision (benefit)** | $ — | $ — |

The reconciliation of the U. S. federal statutory income tax rate to the Company's effective income tax rate is as follows:

| | Cumulative from July 25, 2017 (Date of Inception) to December 31, 2017 | Year Ended December 31, 2018 |
|---|---|---|
| Federal statutory income tax rate | 35.0% | 21.0% |
| State taxes, net of federal benefit | 5.6 | 6.3 |
| Research and development credit, net | — | 1.0 |
| **Non-taxable items:** | | |
| Non-deductible items and other | — | (0.6) |
| Tax rate changes | (13.0) | — |
| Change in valuation allowance | (27.6) | (27.9) |
| **Total** | 0.0% | 0.0% |

Deferred income taxes reflect the net effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes.

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**7. Income Tax (Continued)**

The principal components of the Company's deferred tax assets consisted of the following as of December 31, 2017 and 2018:

| | As of December 31, | |
|---|---|---|
| | 2017 | 2018 |
| **Deferred tax assets:** | | |
| Net operating loss carryforwards | $ — | $ 1,845 |
| Research and development tax credit carryforwards | — | 185 |
| Intangible assets amortization | 7 | 2,315 |
| Accruals and other | — | (3) |
| **Gross deferred tax assets** | 7 | 4,342 |
| Valuation allowance | (7) | (4,342) |
| **Net deferred tax assets** | $ — | $ — |

The Company increased its valuation allowance by approximately $4.3 million for the year ended December 31, 2018. Because of its actual and projected losses, the Company recorded a full valuation allowance against its deferred tax assets as of December 31, 2018. The Company intends to maintain a valuation allowance until enough positive evidence exists to support a reversal of the allowance.

As of December 31, 2018, the Company had federal, state and foreign net operating loss carryforwards of $6.5 million, $6.7 million and $0.2 million, respectively. The federal amounts do not expire; the state net operating losses expire in 2038; the foreign losses expire in 2028. As of December 31, 2018, the Company had federal and state research and development tax credit carryforwards of approximately $0.2 million which begin to expire in 2038.

Under the provisions of Sections 382 and 383 of the Internal Revenue Code (the "IRC"), net operating loss and credit carryforwards and other tax attributes may be subject to limitation if there has been a significant change in ownership of the Company, as defined by the IRC. The Company has not done a study to determine if a change in control as defined by Sections 382 and 383 of the Internal Revenue Code has occurred.

The Company files income tax returns in the U.S. federal jurisdiction, Massachusetts and Korea. The tax returns remain open to examination by the jurisdictions where the Company is subject to tax.

The Company evaluates tax positions for recognition using a more-likely-than-not recognition threshold, and those tax positions eligible for recognition are measured as the largest amount of tax benefit that is greater than 50% likely of being realized upon the effective settlement with a taxing authority that has full knowledge of all relevant information. As of December 31, 2018, the Company had no unrecognized income tax benefits.

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**8. Commitments and Contingencies**

***Operating Leases***

In April 2018, the Company entered a non-cancelable operating lease for its headquarters in Boston, MA ending in May 2019. The lease was subsequently amended, and the term was extended to August 2019 with an option to extend the term on a month-to-month basis. The lease is subject to base lease payments and additional charges for common costs related to usage of shared space.

In July 2019, the Company entered a non-cancelable operating lease for its new facility in Korea for an initial term of five years, with a renewal option. The lease is subject to a deposit, base lease payments and additional charges for utilities and other common costs.

As of June 30, 2019, future minimum payments under the non-cancelable operating leases were as follows (in thousands):

| | |
|---|---|
| Six Months Ending December 31, 2019 | $ 39 |
| Year Ending December 31, 2020 | 37 |
| 2021 | 37 |
| 2022 | 37 |
| 2023 | 37 |
| Thereafter | 19 |
| | $ 206 |

The Company did not incur operating lease expense for the period from inception (July 25, 2017) to December 31, 2017. For the six months ended June 30, 2018 and the year ended December 31, 2018, operating lease expense was $23,000 and $83,000. For the six months ended June 30, 2019, operating lease expense was $62,000.

***Xiehecheng Cultivation Service Agreement***

On September 1, 2018, the Company entered into a cultivation service agreement with Xiehecheng Chinese Herm Limited Corporation for the cultivation of two plants used to manufacture the Company's lead clinical asset, NB-01.

As of June 30, 2019, future minimum payments under the agreement, which is cancellable annually at the end of each research year, are as follows (in thousands):

| | |
|---|---|
| Six Months Ending December 31, 2019 | $ 66 |
| Year Ending December 31, 2020 | 220 |
| 2021 | 220 |
| 2022 | 220 |
| | $ 726 |

***Advisory Agreement***

On October 16, 2018, the Company entered into an agreement with Consilium Partners LLC for advisory services related to a certain type of transaction that, if successfully consummated, would

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**8. Commitments and Contingencies (Continued)**

require the Company to pay the investment bank a success fee of $0.6 million. Additionally, the investment bank is eligible for additional compensation based on certain metrics inherent in such transaction. As of June 30, 2019, future minimum payments under this agreement, if the merger is ratified, are $0.6 million less 50% of fees paid under the advisory service agreement through the success date.

**Contingencies**

From time to time, the Company may be subject to various claims and suits arising in the ordinary course of business. The Company does not expect that the resolution of these matters will have a material adverse effect on its financial position or results of operations.

**9. Related Parties**

***Dong-A ST Co., LTD License Agreement***

On January 18, 2018, the Company entered into a license agreement (the "License Agreement") with Dong-A ST Co., LTD, covering technologies, patents, and knowhow, for a plant-based compound for the treatment of diabetic neuropathy and degenerative nerve disease (IPR&D asset). Under the terms of the License Agreement, the Company has the rights to file an investigational new drug application, to conduct further clinical trials, and then to produce, commercialize, and sell pharmaceuticals world-wide, with the exception of the Republic of Korea whereby Dong-A ST Co., LTD reserves an exclusive right to conduct clinical trials and offer to sell and sell products using the compound. The Company paid total consideration in cash and shares of common stock of $2.3 million. The consideration was expensed and included in the research and development expenses as the IPR&D asset has no alternative future use.

Under the License Agreement, the Company is obligated to make additional milestone payments in the aggregate amount of up to $178.0 million, contingent upon the achievement of certain late-stage regulatory and sales milestones with respect to compound. Additionally, the Company is obligated to pay Dong-A ST Co. LTD tiered royalties based on annual net sales of licensed products upon commercialization.

On January 18, 2018, the Company entered into an asset acquisition agreement (the "Acquisition Agreement"), as amended, with Dong-A ST for NB-02 for the treatment of neurodegenerative disorders (IPR&D asset). Under the terms of the Acquisition Agreement, the Company has the rights to file an investigational new drug application, to conduct further clinical trials, and then produce, commercialize, and sell pharmaceuticals world-wide using NB-02. The Company paid total consideration in cash and shares of common stock of $6.5 million. This consideration was expensed as a research and development cost as the IPR&D asset has no alternative future use.

On September 28, 2018, the Company entered into a five (5) year manufacturing and supply agreement (the "Manufacturing Agreement") with Dong-A ST for manufacturing and supply of NB-01 drug substance and placebos for the purpose of research and development to be used in the Company's Phase 3 clinical trials. The Company recognized approximately $383,000 of product manufacturing related costs within research and development expenses for the year ended December 31, 2018 and

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**9. Related Parties (Continued)**

$314,000 for the six-month period ended June 30, 2019. The Company had $0 and $306,000 in accrued liabilities to Dong-A at December 31, 2018 and June 30, 2019, respectively.

***JK Biopharma Solutions, Inc.***

JK Biopharma Solutions, Inc. a company in which Jeong Gu Kang, a founder and former chief operating officer of NeuroBo, and certain of NeuroBo's Series A and Series B investors are collectively majority stockholders, currently assists NeuroBo on certain activities, primarily related to translations. JK BioPharma Solutions, Inc.'s President and CEO, Jeong Gyun Oh, serves as a board member of NeuroBo and his wife is a minority investor in the Company Series B financing. There are no formal arrangements between the Company and JK Biopharma Solutions, Inc. and all work done to date has been done without compensation. However, the Company issued a $32,000 payment in February 2018 to reimburse JK Biopharma Solutions, Inc. for payments made to Company vendors during late 2017 and early 2018.

***2019 Preferred Series B Financing***

In June 2019, NeuroBo concluded a Preferred Series B financing round, or the Series B Financing, in which NeuroBo issued 3,030,000 Series B preferred shares at $8.00 per share, raising $24,240,000 in gross proceeds. As part of the Series B Financing, parties to existing investment agreements and a shareholders' agreement entered into in connection with prior rounds of financing agreed to become parties to the consolidated shareholders' agreement for the Series B. All investors in the Series B Financing were deemed to be inside investors of NeuroBo.

**10. Subsequent Events**

Except as described below, the Company has concluded that no subsequent event has occurred that requires disclosure.

On July 24, 2019, Gemphire Therapeutics and NeuroBo Pharmaceuticals, Inc. announced that they have entered into a definitive agreement whereby NeuroBo will merge with a wholly-owned subsidiary of Gemphire in an all-stock transaction. Upon completion of the merger, Gemphire will change its name to NeuroBo Pharmaceuticals, Inc., and plans to change its ticker symbol on the Nasdaq Capital Market to "NRBO". The merged company will focus on the development of NeuroBo's clinical-stage drug candidates for the treatment of neurodegenerative diseases.

On August 13, 2019, the Company effected a ten thousand-for-one stock split of its issued and outstanding shares of common stock and redeemable convertible preferred stock (Note 4). Accordingly, all share and per share amounts for all periods presented in the accompanying financial statements and notes thereto have been adjusted retroactively, where applicable, to reflect this stock split.

In September 2019, the Company entered into an agreement for office space located in Boston, Massachusetts for its headquarters. The agreement, effective December 2, 2019, has a two year term, and rental costs of $49,162 per month.

**NeuroBo Pharmaceuticals, Inc.**

**Notes to Consolidated Financial Statements (Continued)**

**(Information as of June 30, 2019 and thereafter and for the six months ended June 30, 2018 and 2019 is unaudited)**

**10. Subsequent Events (Continued)**

On October 15, 2019, JK Biopharma Solutions, Inc. entered into assignment agreements with The E&Healthcare Investment Fund II, The E&Healthcare Investment Fund No.6 and The E&Healthcare Investment Fund No.7 to transfer $200,000 of the $400,000 worth of Convertible Notes owned by JK Biopharma Solutions, Inc. Pursuant to the assignment agreements, The E&Healthcare Investment Fund II received $116,000 worth of Convertible Notes, The E&Healthcare Investment Fund No.6 received $32,000 worth of Convertible Notes and The E&Healthcare Investment Fund No.7 received $52,000 worth of Convertible Notes. Assuming the Convertible Notes are converted on December 31, 2019, the transferred portion of the Convertible Notes held by The E&Healthcare Investment Fund II would be convertible into 293,059 shares of NeuroBo common stock, the transferred portion of the Convertible Notes held by The E&Healthcare Investment Fund No.6 would be convertible into 80,844 shares of NeuroBo common stock and the transferred portion of the Convertible Notes held by The E&Healthcare Investment Fund No.7 would be convertible into 131,371 shares of NeuroBo common stock.

**Annex A**

**EXECUTION VERSION**

**AGREEMENT AND PLAN OF MERGER**
**AND REORGANIZATION**

among:

**GEMPHIRE THERAPEUTICS INC.**,
a Delaware corporation;

**GR MERGER SUB INC.**,
a Delaware corporation; and

**NEUROBO PHARMACEUTICALS, INC.**,
a Delaware corporation
Dated as of July 24, 2019

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## AGREEMENT AND PLAN OF MERGER AND REORGANIZATION

**THIS AGREEMENT AND PLAN OF MERGER AND REORGANIZATION** (this "***Agreement***") is made and entered into as of July 24, 2019, by and among **GEMPHIRE THERAPEUTICS INC.**, a Delaware corporation ("***Parent***"), **GR MERGER SUB INC.**, a Delaware corporation and wholly owned subsidiary of Parent ("***Merger Sub***"), and **NEUROBO PHARMACEUTICALS, INC.**, a Delaware corporation (the "***Company***"). Certain capitalized terms used in this Agreement are defined in **Exhibit A**.

## RECITALS

A. Parent and the Company intend to effect a merger of Merger Sub with and into the Company (the "***Merger***") in accordance with this Agreement and the DGCL. Upon consummation of the Merger, Merger Sub will cease to exist and the Company will become a wholly owned subsidiary of Parent.

B. The Parties intend that the Merger qualify as either a tax-free contribution pursuant to Section 351 of the Code or a "reorganization" within the meaning of Section 368(a) of the Code, and by executing this Agreement, the Parties intend to adopt a plan of reorganization within the meaning of Treasury Regulations Sections 1.368-2(g) and 1.368-3.

C. The Parent Board has (i) determined that the Contemplated Transactions are fair to, advisable and in the best interests of Parent and its stockholders, (ii) approved and declared advisable this Agreement and the Contemplated Transactions, including each of the Parent Stockholder Matters, and (iii) determined to recommend, upon the terms and subject to the conditions set forth in this Agreement, that the stockholders of Parent vote to approve the Parent Stockholder Matters.

D. The Merger Sub Board has (i) determined that the Contemplated Transactions are fair to, advisable, and in the best interests of Merger Sub and its sole stockholder, (ii) approved and declared advisable this Agreement and the Contemplated Transactions and (iii) determined to recommend, upon the terms and subject to the conditions set forth in this Agreement, that the stockholder of Merger Sub votes to adopt this Agreement and thereby approve the Contemplated Transactions.

E. The Company Board has (i) determined that the Contemplated Transactions are fair to, advisable and in the best interests of the Company and its stockholders, (ii) approved and declared advisable this Agreement and the Contemplated Transactions and (iii) determined to recommend, upon the terms and subject to the conditions set forth in this Agreement, that the stockholders of the Company vote to approve the Company Stockholder Matters.

F. Concurrently with the execution and delivery of this Agreement and as a condition and inducement to Parent's willingness to enter into this Agreement, the officers, directors and certain stockholders of the Company listed on Schedule A of the Company Disclosure Schedule (solely in their capacity as stockholders of the Company) (the "***Company Signatories***") are executing (a) support agreements in favor of Parent in substantially the form attached hereto as **Exhibit B-1** (the "***Company Stockholder Support Agreement***"), pursuant to which the Company Signatories have, subject to the terms and conditions set forth therein, agreed to vote all of their shares of Company Capital Stock in favor of the Company Stockholder Matters and against any proposals that compete with the Contemplated Transactions, and (b) lock-up agreements in substantially the form attached hereto as **Exhibit D-1** (the "***Company Lock-Up Agreement***").

G. Concurrently with the execution and delivery of this Agreement and as a condition and inducement to the Company's willingness to enter into this Agreement, (a) the officers and directors and certain stockholders of Parent listed on Schedule A of the Parent Disclosure Schedule (solely in their capacity as stockholders of Parent) (the "***Parent Signatories***") are executing support agreements in favor of the Company in substantially the form attached hereto as **Exhibit B-2** (the "***Parent Stockholder Support Agreement***"), pursuant to which the Parent Signatories have, subject to the terms and conditions

set forth therein, agreed to vote all of their shares of Parent Common Stock in favor of the Parent Stockholder Matters and against any proposals that compete with the Contemplated Transactions and (b) the officers and directors of Parent are executing lock-up agreements in substantially the form attached hereto as **Exhibit D-2** (the "***Parent Lock-Up Agreement***").

H. It is expected that within five Business Days after the Registration Statement is declared effective under the Securities Act, the Company Signatories will execute and deliver an action by written consent adopting the Company Stockholder Matters in a form reasonably acceptable to Parent (each, a "***Company Stockholder Written Consent***" and collectively, the "***Company Stockholder Written Consents***").

I. Prior to the execution and delivery of this Agreement, and as a condition of the willingness of Parent to enter into this Agreement, certain investors have executed one or more Subscription Agreements with Company pursuant to which such investors have purchased and/or agreed to purchase certain shares of capital stock of the Company prior to the Closing in connection with the Pre-Closing Financing.

**AGREEMENT**

The Parties, intending to be legally bound, agree as follows:

**Section 1. DESCRIPTION OF TRANSACTION**

1.1 ***The Merger***. Upon the terms and subject to the conditions set forth in this Agreement, at the Effective Time, Merger Sub shall be merged with and into the Company, and the separate existence of Merger Sub shall cease. The Company will continue as the surviving corporation in the Merger (the "***Surviving Corporation***").

1.2 ***Effects of the Merger***. The Merger shall have the effects set forth in this Agreement, the Certificate of Merger and in the applicable provisions of the DGCL. As a result of the Merger, the Company will become a wholly owned subsidiary of Parent.

1.3 ***Closing; Effective Time***. Unless this Agreement is earlier terminated pursuant to the provisions of *Section 9.1*, and subject to the satisfaction or waiver of the conditions set forth in *Sections 6*, *7* and *8*, the consummation of the Merger (the "***Closing***") shall take place remotely as promptly as practicable (but in no event later than the third Business Day following the satisfaction or waiver of the last to be satisfied or waived of the conditions set forth in *Sections 6*, *7* and *8*, other than those conditions that by their nature are to be satisfied at the Closing, but subject to the satisfaction or waiver of each of such conditions), or at such other time, date and place as Parent and the Company may mutually agree in writing. The date on which the Closing actually takes place is referred to as the "***Closing Date***." At the Closing, the Parties shall cause the Merger to be consummated by executing and filing with the Secretary of State of the State of Delaware a certificate of merger with respect to the Merger, satisfying the applicable requirements of the DGCL and in a form reasonably acceptable to Parent and the Company (the "***Certificate of Merger***"). The Merger shall become effective at the time of the filing of such Certificate of Merger with the Secretary of State of the State of Delaware or at such later time as may be specified in such Certificate of Merger with the consent of Parent and the Company (the time as of which the Merger becomes effective being referred to as the "***Effective Time***").

1.4 ***Certificate of Incorporation and Bylaws; Directors and Officers***. At the Effective Time:

(a) the certificate of incorporation of the Surviving Corporation shall be amended and restated in its entirety to read identically to the certificate of incorporation of Merger Sub as in effect immediately prior to the Effective Time, until thereafter amended as provided by the DGCL and such certificate of incorporation.

(b) the certificate of incorporation of Parent shall be identical to the certificate of incorporation of Parent immediately prior to the Effective Time, until thereafter amended as provided by the DGCL and such certificate of incorporation, *provided, however*, that at the Effective Time, Parent shall file one or more amendments to its certificate of incorporation, to the extent approved by the holders of Parent Common Stock as contemplated by *Section 5.3*, to (i) change the name of Parent to NeuroBo Pharmaceuticals, Inc., (ii) effect the Reverse Split, and (iii) make such other changes as are mutually agreeable to Parent and the Company;

(c) the bylaws of the Surviving Corporation shall be amended and restated in their entirety to read identically to the bylaws of Merger Sub as in effect immediately prior to the Effective Time, until thereafter amended as provided by the DGCL and such bylaws;

(d) the parties shall take all actions necessary to cause the directors and officers of Parent, each to hold office in accordance with the certificate of incorporation and bylaws of Parent, to be as set forth in *Section 5.13* and to amend the bylaws of Parent to reflect the name identified in *Section 1.4(b)*; and

(e) the parties shall take all actions necessary to cause the directors and officers of the Surviving Corporation to be the directors and officers of Parent as set forth in *Section 5.13*, after giving effect to the provisions of *Section 5.13*, or such other persons as shall be mutually agreed upon by Parent and the Company each to hold office in accordance with the certificate of incorporation and bylaws of the Surviving Corporation.

1.5 ***Conversion of Shares***.

(a) At the Effective Time, by virtue of the Merger and without any further action on the part of Parent, Merger Sub, the Company or any stockholder of the Company or Parent:

(i) any shares of Company Common Stock held as treasury stock or held or owned by the Company, Merger Sub or any Subsidiary of the Company immediately prior to the Effective Time shall be canceled and retired and shall cease to exist, and no consideration shall be delivered in exchange therefor; and

(ii) subject to *Section 1.5(c)*, each share of Company Common Stock outstanding immediately prior to the Effective Time (excluding shares to be canceled pursuant to *Section 1.5(a)(i)*, excluding Dissenting Shares and after giving effect to the Pre-Closing Financing, the Preferred Stock Conversion, the Convertible Note Conversion and the Stock Split) shall be automatically converted solely into the right to receive a number of shares of Parent Common Stock equal to the Exchange Ratio (the "***Merger Consideration***").

(b) If any shares of Company Common Stock outstanding immediately prior to the Effective Time are unvested or are subject to a repurchase option or a risk of forfeiture under any applicable restricted stock purchase agreement or other similar agreement with the Company, then the shares of Parent Common Stock issued in exchange for such shares of Company Common Stock will to the same extent be unvested and subject to the same repurchase option or risk of forfeiture, and such shares of Parent Common Stock shall accordingly be marked with appropriate legends. The Company shall take all actions that may be necessary to ensure that, from and after the Effective Time, Parent is entitled to exercise any such repurchase option or other right set forth in any such restricted stock purchase agreement or other agreement in accordance with its terms.

(c) No fractional shares of Parent Common Stock shall be issued in connection with the Merger, and no certificates or scrip for any such fractional shares shall be issued. Any holder

of Company Common Stock who would otherwise be entitled to receive a fraction of a share of Parent Common Stock (after aggregating all fractional shares of Parent Common Stock issuable to such holder) shall, in lieu of such fraction of a share and upon surrender by such holder of a letter of transmittal in accordance with *Section 1.8* and any accompanying documents as required therein, be paid in cash the dollar amount (rounded to the nearest whole cent), without interest, determined by multiplying such fraction by the Parent Closing Price.

(d) All Company Options outstanding immediately prior to the Effective Time under the Company Plan shall be treated in accordance with *Section 5.5(a)*.

(e) All Parent Options outstanding immediately prior to the Effective Time under the Parent Stock Plans shall be treated in accordance with *Section 5.5(d)*.

(f) All Parent Warrants outstanding immediately prior to the Effective Time shall be treated in accordance with *Section 5.5(e)*.

(g) Each share of common stock, $0.0001 par value per share, of Merger Sub issued and outstanding immediately prior to the Effective Time shall be converted into and exchanged for one validly issued, fully paid and nonassessable share of common stock, $0.0001 par value per share, of the Surviving Corporation. Each stock certificate of Merger Sub evidencing ownership of any such shares shall, as of the Effective Time, evidence ownership of such shares of common stock of the Surviving Corporation.

(h) If, between the time of calculating the Exchange Ratio and the Effective Time, the outstanding shares of Company Capital Stock or Parent Common Stock shall have been changed into, or exchanged for, a different number of shares or a different class, by reason of any stock dividend, subdivision, reclassification, recapitalization, split (including the Reverse Split or Stock Split to the extent such split has not been previously taken into account in calculating the Exchange Ratio), combination or exchange of shares or other like change, the Exchange Ratio shall, to the extent necessary, be equitably adjusted to reflect such change to the extent necessary to provide the holders of Company Capital Stock, Parent Common Stock, Company Options, Parent Options and Parent Warrants with the same economic effect as contemplated by this Agreement prior to such stock dividend, subdivision, reclassification, recapitalization, split (including the Reverse Split or Stock Split to the extent such split has not been previously taken into account in calculating the Exchange Ratio), combination or exchange of shares or other like change; *provided, however*, that nothing herein will be construed to permit the Company or Parent to take any action with respect to Company Capital Stock or Parent Common Stock, respectively, that is prohibited or not expressly permitted by the terms of this Agreement.

1.6 ***Contingent Value Right***.

(a) Holders of Parent Common Stock of record as of immediately prior to the Effective Time shall be entitled to one contractual contingent value right (a "***CVR***") issued by Parent subject to and in accordance with the terms and conditions of the Contingent Value Rights Agreement, attached hereto as **Exhibit C** (the "***CVR Agreement***"), for each share of Parent Common Stock held by such holders.

(b) At or prior to the Effective Time, Parent shall authorize and duly adopt, execute and deliver, and will ensure that Exchange Agent and Holders' Representative (as defined in the CVR Agreement) execute and deliver, the CVR Agreement, subject to any reasonable revisions to the CVR Agreement that are requested by such Exchange Agent (provided that such revisions are immaterial and not, individually or in the aggregate, detrimental or adverse, taken as a whole, to any holder of CVR). Parent and the Company shall cooperate, including

by making changes to the form of CVR Agreement, as necessary to ensure that the CVRs are not subject to registration under the Securities Act, the Exchange Act or any applicable state securities or "blue sky" laws.

(c) Parent, the Exchange Agent and (if necessary) Holders' Representative shall, at or prior to the Effective Time, duly authorize, execute and deliver the CVR Agreement.

1.7 ***Closing of the Company's Transfer Books***. At the Effective Time: (a) all shares of Company Common Stock outstanding immediately prior to the Effective Time (after giving effect to the Pre-Closing Financing, Preferred Stock Conversion, Convertible Note Conversion and the Stock Split) shall be treated in accordance with *Section 1.5(a)*, and all holders of certificates representing shares of Company Capital Stock that were outstanding immediately prior to the Effective Time shall cease to have any rights as stockholders of the Company; and (b) the stock transfer books of the Company shall be closed with respect to all shares of Company Capital Stock outstanding immediately prior to the Effective Time. No further transfer of any such shares of Company Capital Stock shall be made on such stock transfer books after the Effective Time. If, after the Effective Time, a valid certificate previously representing any shares of Company Capital Stock, including any valid certificate representing any shares of Company Preferred Stock previously converted into shares of Company Common Stock in connection with the Preferred Stock Conversion, outstanding immediately prior to the Effective Time (a "***Company Stock Certificate***") is presented to the Exchange Agent or to the Surviving Corporation, such Company Stock Certificate shall be canceled and shall be exchanged as provided in *Sections 1.5* and *1.8*.

1.8 ***Surrender of Certificates***.

(a) On or prior to the Closing Date, Parent and the Company shall agree upon and select a reputable bank, transfer agent or trust company to act as exchange agent in the Merger (the "***Exchange Agent***"). At the Effective Time, Parent shall deposit with the Exchange Agent: (i) certificates or evidence of book-entry shares representing the Parent Common Stock issuable pursuant to *Section 1.5(a)* and (ii) cash sufficient to make payments in lieu of fractional shares in accordance with *Section 1.5(c)*. The Parent Common Stock and cash amounts so deposited with the Exchange Agent, together with any dividends or distributions received by the Exchange Agent with respect to such shares, are referred to collectively as the "***Exchange Fund***."

(b) Promptly after the Effective Time, the Parties shall cause the Exchange Agent to mail to the Persons who were record holders of shares of Company Capital Stock that were converted into the right to receive the Merger Consideration: (i) a letter of transmittal in customary form and containing such provisions as Parent may reasonably specify (including a provision confirming that delivery of Company Stock Certificates shall be effected, and risk of loss and title to Company Stock Certificates shall pass, only upon proper delivery of such Company Stock Certificates to the Exchange Agent); and (ii) instructions for effecting the surrender of Company Stock Certificates in exchange for shares of Parent Common Stock. Upon surrender of a Company Stock Certificate to the Exchange Agent for exchange, together with a duly executed letter of transmittal and such other documents as may be reasonably required by the Exchange Agent or Parent: (A) the holder of such Company Stock Certificate shall be entitled to receive in exchange therefor a certificate or certificates or book-entry shares representing the Merger Consideration (in a number of whole shares of Parent Common Stock) that such holder has the right to receive pursuant to the provisions of *Section 1.5(a)* (and cash in lieu of any fractional share of Parent Common Stock pursuant to the provisions of *Section 1.5(c)*); and (B) the Company Stock Certificate so surrendered shall be canceled. Until surrendered as contemplated by this *Section 1.8(b)*, each Company Stock Certificate shall be deemed, from and after the Effective Time, to represent only the right to

receive a certificate or certificates or book-entry shares of Parent Common Stock representing the Merger Consideration (and cash in lieu of any fractional share of Parent Common Stock). If any Company Stock Certificate shall have been lost, stolen or destroyed, Parent may, in its discretion and as a condition precedent to the delivery of any shares of Parent Common Stock, require the owner of such lost, stolen or destroyed Company Stock Certificate to provide an applicable affidavit with respect to such Company Stock Certificate that includes an obligation of such owner to indemnify Parent against any claim suffered by Parent related to the lost, stolen or destroyed Company Stock Certificate as Parent may reasonably request. In the event of a transfer of ownership of a Company Stock Certificate that is not registered in the transfer records of the Company, payment of the Merger Consideration may be made to a Person other than the Person in whose name such Company Stock Certificate so surrendered is registered if such Company Stock Certificate shall be properly endorsed or otherwise be in proper form for transfer and the Person requesting such payment shall pay any transfer or other Taxes required by reason of the transfer or establish to the reasonable satisfaction of Parent that such Taxes have been paid or are not applicable. The Merger Consideration and any dividends or other distributions as are payable pursuant to *Section 1.8(c)* shall be deemed to have been in full satisfaction of all rights pertaining to Company Capital Stock formerly represented by such Company Stock Certificates.

(c) No dividends or other distributions declared or made with respect to Parent Common Stock with a record date on or after the Effective Time shall be paid to the holder of any unsurrendered Company Stock Certificate with respect to the shares of Parent Common Stock that such holder has the right to receive in the Merger until such holder surrenders such Company Stock Certificate or provides an affidavit of loss or destruction in lieu thereof in accordance with this *Section 1.8* (at which time (or, if later, on the applicable payment date) such holder shall be entitled, subject to the effect of applicable abandoned property, escheat or similar Laws, to receive all such dividends and distributions, without interest).

(d) Any portion of the Exchange Fund that remains undistributed to holders of Company Stock Certificates as of the date that is 180 days after the Closing Date shall be delivered to Parent upon demand, and any holders of Company Stock Certificates who have not theretofore surrendered their Company Stock Certificates in accordance with this *Section 1.8* shall thereafter look only to Parent for satisfaction of their claims for Parent Common Stock, cash in lieu of fractional shares of Parent Common Stock and any dividends or distributions with respect to shares of Parent Common Stock.

(e) No Party shall be liable to any holder of any Company Stock Certificate or to any other Person with respect to any shares of Parent Common Stock (or dividends or distributions with respect thereto) or for any cash amounts delivered to any public official pursuant to any applicable abandoned property Law, escheat Law or similar Law.

1.9 ***Appraisal Rights***.

(a) Notwithstanding any provision of this Agreement to the contrary, shares of Company Capital Stock that are outstanding immediately prior to the Effective Time and which are held by stockholders who have exercised and perfected appraisal rights for such shares of Company Capital Stock in accordance with the DGCL (collectively, the "***Dissenting Shares***"), shall not be converted into or represent the right to receive the Merger Consideration described in *Section 1.5* attributable to such Dissenting Shares. Such stockholders shall be entitled to receive payment of the appraised value of such shares of Company Capital Stock held by them in accordance with the DGCL, unless and until such stockholders fail to perfect or effectively withdraw or otherwise lose their appraisal rights under the DGCL. All Dissenting Shares held

by stockholders who shall have failed to perfect or shall have effectively withdrawn or lost their right to appraisal of such shares of Company Capital Stock under the DGCL (whether occurring before, at or after the Effective Time), shall thereupon be deemed to be converted into and to have become exchangeable for, as of the Effective Time, the right to receive the Merger Consideration, without interest, attributable to such Dissenting Shares upon their surrender in the manner provided in *Sections 1.5* and *1.8*.

(b) The Company shall give Parent prompt written notice of any demands by dissenting stockholders received by the Company, withdrawals of such demands and any other instruments served on the Company and any material correspondence received by the Company in connection with such demands, and the Company shall have the right to direct all negotiations and proceedings with respect to such demands; *provided* that Parent shall have the right to participate in such negotiations and proceedings. Neither Parent nor the Company shall, except with the prior written consent of the other Party, voluntarily make any payment with respect to, or settle or offer to settle, any such demands, or approve any withdrawal of any such demands or agree to do any of the foregoing.

1.10 ***Further Action***. If, at any time after the Effective Time, any further action is determined by the Surviving Corporation to be necessary or desirable to carry out the purposes of this Agreement or to vest the Surviving Corporation with full right, title and possession of and to all rights and property of the Company, then the officers and directors of the Surviving Corporation shall be fully authorized, and shall use their and its commercially reasonable efforts (in the name of the Company, in the name of Merger Sub, in the name of the Surviving Corporation and otherwise) to take such action.

1.11 ***Withholding***. The Parties and the Exchange Agent shall be entitled to deduct and withhold from the consideration otherwise payable pursuant to this Agreement to any holder of Company Capital Stock or any other Person such amounts as such Party or the Exchange Agent reasonably determines it is required to deduct and withhold under the Code or any other Law with respect to the making of such payment and shall be entitled to request any reasonably appropriate Tax forms, including an IRS Form W-9 (or the appropriate IRS Form W-8, as applicable), from any recipient of payments hereunder; *provided, however*, that before making any such deduction or withholding, Parent shall provide to the Company commercially reasonable notice of any applicable payor's intention to make such deduction or withholding and such notice shall include in reasonable detail the authority, basis and method of calculation for the proposed deduction or withholding and shall be given at least a commercially reasonable period of time before such deduction or withholding is required in order for the Company to obtain reduction or relief from the applicable Governmental Authority. The payor shall provide commercially reasonable notice to the payee upon becoming aware of any such withholding obligation, and the Parties shall cooperate with each other to the extent reasonable to obtain a reduction of or relief from such withholding. To the extent that amounts are so deducted and withheld and paid to the appropriate Governmental Body, such deducted and withheld amounts shall be treated for all purposes of this Agreement as having been paid to the Person in respect of whom such deduction and withholding was made.

1.12 ***Calculation of Parent Cash Amount***.

(a) For the purposes of this Agreement, the "***Determination Date***" shall be the date that is ten calendar days prior to the anticipated date for Closing, as agreed upon by the Company and Parent at least ten calendar days prior to the date of the Parent Stockholders' Meeting (the "***Anticipated Closing Date***"). Within five calendar days following the Determination Date, Parent shall deliver to the Company a schedule (the "***Parent Cash Schedule***") setting forth, in reasonable detail, Parent's good faith, estimated calculation of the Parent Cash Amount (the

"***Parent Cash Calculation***") as of the Anticipated Closing Date prepared and certified by Parent's Chief Financial Officer (or if there is no Chief Financial Officer, the principal accounting officer for Parent). Parent shall make the work papers and back-up materials used in preparing the Parent Cash Schedule, as reasonably requested by the Company, available to the Company and, if requested by the Company, its accountants and counsel at reasonable times and upon reasonable notice.

(b) Within three calendar days after Parent delivers the Parent Cash Schedule to the Company (the "***Response Date***"), the Company will have the right to dispute any part of such Parent Cash Schedule by delivering a written notice to that effect to Parent (a "***Dispute Notice***"). Any Dispute Notice shall identify in reasonable detail the nature of any proposed revisions to the Parent Cash Calculation.

(c) If on or prior to the Response Date, (i) the Company notifies Parent in writing that it has no objections to the Parent Cash Calculation or (ii) the Company fails to deliver a Dispute Notice as provided in *Section 1.12(b)*, then the Parent Cash Calculation as set forth in the Parent Cash Schedule shall be deemed to have been finally determined for purposes of this Agreement and to represent the Parent Cash Amount at the Anticipated Closing Date for purposes of this Agreement.

(d) If the Company delivers a Dispute Notice on or prior to the Response Date, then Representatives of Parent and the Company shall promptly meet and attempt in good faith to resolve the disputed item(s) and negotiate an agreed-upon determination of the Parent Cash Amount, which agreed upon the Parent Cash Amount shall be deemed to have been finally determined for purposes of this Agreement and to represent the Parent Cash Amount at the Anticipated Closing Date for purposes of this Agreement.

(e) If Representatives of Parent and the Company are unable to negotiate an agreed-upon determination of the Parent Cash Amount at the Anticipated Closing Date pursuant to *Section 1.12(d)* within three calendar days after delivery of the Dispute Notice (or such other period as Parent and the Company may mutually agree upon), then Parent and the Company shall jointly select an independent auditor of recognized national standing (the "***Accounting Firm***") to resolve any remaining disagreements as to the Parent Cash Calculation. Parent shall promptly deliver to the Accounting Firm the work papers and back-up materials used in preparing the Parent Cash Schedule, and Parent and the Company shall use commercially reasonable efforts to cause the Accounting Firm to make its determination within ten calendar days of accepting its selection. The Company and Parent shall be afforded the opportunity to present to the Accounting Firm any material related to the unresolved disputes and to discuss the issues with the Accounting Firm; *provided*, *however*, that no such presentation or discussion shall occur without the presence of a Representative of each of the Company and Parent. The determination of the Accounting Firm shall be limited to the disagreements submitted to the Accounting Firm. The determination of the Parent Cash Amount made by the Accounting Firm shall be deemed to have been finally determined for purposes of this Agreement and to represent the Parent Cash Amount at the Anticipated Closing Date for purposes of this Agreement, and the Parties shall delay the Closing until the resolution of the matters described in this *Section 1.12(e)*. The fees and expenses of the Accounting Firm shall be allocated between Parent and the Company in the same proportion that the disputed amount of the Parent Cash Amount that was unsuccessfully disputed by such Party (as finally determined by the Accounting Firm) bears to the total disputed amount of the Parent Cash Amount (and for the avoidance of doubt the fees and expenses to be paid by Parent shall reduce the Parent Cash Amount). If this *Section 1.12(e)* applies as to the determination of the Parent Cash Amount at the Anticipated Closing Date described in *Section 1.12(a)*, upon resolution of the matter in accordance with this *Section 1.12(e)*, the

Parties shall not be required to determine the Parent Cash Amount again even though the Closing Date may occur later than the Anticipated Closing Date, except that either Party may request a re-determination of the Parent Cash Amount if the Closing Date is more than five Business Days after the Anticipated Closing Date.

(f) Within five (5) Business Days following the end of each calendar month before the Closing Date, Parent shall provide the Company in writing its good faith estimated calculation of the Parent Cash Amount as of the last day of such calendar month.

**Section 2. REPRESENTATIONS AND WARRANTIES OF THE COMPANY**

Subject to *Section 10.12(h)*, except as set forth in the disclosure schedule delivered by the Company to Parent (the "***Company Disclosure Schedule***"), the Company represents and warrants to Parent and Merger Sub as follows:

2.1 ***Due Organization; Subsidiaries***.

(a) The Company is a corporation duly incorporated, validly existing and in good standing under the Laws of Delaware and has all necessary corporate power and authority: (i) to conduct its business in the manner in which its business is currently being conducted; (ii) to own or lease and use its property and assets in the manner in which its property and assets are currently owned or leased and used; and (iii) to perform its obligations under all Contracts by which it is bound, except where the failure to have such power or authority would not reasonably be expected to prevent or materially delay the ability of the Company to consummate the Contemplated Transactions.

(b) The Company is duly licensed and qualified to do business, and is in good standing (to the extent applicable in such jurisdiction), under the Laws of all jurisdictions where the nature of its business requires such licensing or qualification other than in jurisdictions where the failure to be so qualified individually or in the aggregate would not be reasonably expected to have a Company Material Adverse Effect.

(c) The Company has no Subsidiaries, except for the Entities identified in *Section 2.1(c)* of the Company Disclosure Schedule. Neither the Company nor any of the Entities identified in *Section 2.1(c)* of the Company Disclosure Schedule owns any capital stock of, or any equity, ownership or profit sharing interest of any nature in, or controls directly or indirectly, any other Entity other than the Entities identified in *Section 2.1(c)* of the Company Disclosure Schedule. Each of the Company's Subsidiaries is a corporation or other legal entity duly incorporated or otherwise organized, validly existing and, if applicable, in good standing under the Laws of the jurisdiction of its incorporation or organization, as applicable, and has all necessary corporate or other power and authority to conduct its business in the manner in which its business is currently being conducted and to own or lease and use its property and assets in the manner in which its property and assets are currently owned or leased and used, except where the failure to have such power or authority would not be reasonably expected to have a Company Material Adverse Effect.

(d) Neither the Company nor any of its Subsidiaries is or has otherwise been, directly or indirectly, a party to, member of or participant in any partnership, joint venture or similar business entity. Neither the Company nor any of its Subsidiaries has agreed or is obligated to make, or is bound by any Contract under which it may become obligated to make, any future investment in or capital contribution to any other Entity. Neither the Company nor any of its Subsidiaries has, at any time, been a general partner of, or has otherwise been liable for any of the debts or other obligations of, any general partnership, limited partnership or other Entity.

2.2 ***Organizational Documents***. The Company has made available to Parent accurate and complete copies of the Organizational Documents of the Company and each of its Subsidiaries in effect as of the date of this Agreement. Neither the Company nor any of its Subsidiaries is in breach or violation of its respective Organizational Documents.

2.3 ***Authority; Binding Nature of Agreement***.

(a) The Company and each of its Subsidiaries have all necessary corporate or other applicable entity power and authority to enter into and to perform its obligations under this Agreement and, subject to the receipt of the Required Company Stockholder Vote, to consummate the Contemplated Transactions. The Company Board (at meetings duly called and held) has (i) determined that the Contemplated Transactions are fair to, advisable and in the best interests of the Company and its stockholders, (ii) authorized, approved and declared advisable this Agreement and the Contemplated Transactions and (iii) determined to recommend, upon the terms and subject to the conditions set forth in this Agreement, that the stockholders of the Company vote to approve the Company Stockholder Matters.

(b) This Agreement has been duly executed and delivered by the Company and assuming the due authorization, execution and delivery by Parent and Merger Sub, constitutes the legal, valid and binding obligation of the Company, enforceable against the Company in accordance with its terms, subject to the Enforceability Exceptions.

2.4 ***Vote Required***. The affirmative vote (or written consent) of (a) (i) the holders of a majority of the shares of Company Common Stock and Company Preferred Stock, on an as-converted to Company Common Stock basis, each outstanding on the record date for the Company Stockholder Written Consent and entitled to vote thereon, and (ii) the holders of at least two-thirds of the outstanding shares of Company Preferred Stock, together as a single class, on an as-converted to Company Common Stock basis, and (b) the holders at least a majority of the outstanding shares of Series A Preferred Stock (with respect to the Convertible Note Conversion only) (collectively, the "***Required Company Stockholder Vote***"), is the only vote (or written consent) of the holders of any class or series of Company Capital Stock necessary to adopt and approve this Agreement and approve the Contemplated Transactions.

2.5 ***Non-Contravention; Consents***. Subject to obtaining the Required Company Stockholder Vote, the filing of the Certificate of Merger required by the DGCL, neither (x) the execution, delivery or performance of this Agreement by the Company, nor (y) the consummation of the Contemplated Transactions, will directly or indirectly (with or without notice or lapse of time):

(a) contravene, conflict with or result in a violation of any of the provisions of the Company's Organizational Documents;

(b) contravene, conflict with or result in a material violation of, or, to the Knowledge of the Company, give any Governmental Body or other Person the right to challenge the Contemplated Transactions or to exercise any material remedy or obtain any material relief under, any Law or any order, writ, injunction, judgment or decree to which the Company or its Subsidiaries, or any of the assets owned or used by the Company or its Subsidiaries, is subject, except as would not reasonably be expected to be material to the Company or its business;

(c) contravene, conflict with or result in a violation of any of the terms or requirements of, or give any Governmental Body the right to revoke, withdraw, suspend, cancel, terminate or modify, any Governmental Authorization that is held by the Company or its Subsidiaries, except as would not reasonably be expected to be material to the Company or its business;

(d) contravene, conflict with or result in a violation or breach of, or result in a default under, any provision of any Company Material Contract, or give any Person the right to: (i) declare a default or exercise any remedy under any Company Material Contract; (ii) any material payment, rebate, chargeback, penalty or change in delivery schedule under any Company Material Contract; (iii) accelerate the maturity or performance of any Company Material Contract; or (iv) cancel, terminate or modify any term of any Company Material Contract, except in any such case as would not be reasonably likely to result in a Company Material Adverse Effect; or

(e) result in the imposition or creation of any Encumbrance upon or with respect to any material asset owned or used by the Company or its Subsidiaries (except for Permitted Encumbrances).

Except for (i) any Consent set forth on *Section 2.5* of the Company Disclosure Schedule under any Company Contract, (ii) the Required Company Stockholder Vote, (iii) the filing of the Certificate of Merger with the Secretary of State of the State of Delaware pursuant to the DGCL, and (iv) such consents, waivers, approvals, orders, authorizations, registrations, declarations and filings as may be required under applicable federal and state securities Laws, neither the Company nor any of its Subsidiaries is or will be required to make any filing with or give any notice to, or to obtain any Consent from, any Person in connection with (A) the execution, delivery or performance of this Agreement and the Company Stockholder Support Agreements, and the Company Lock-up Agreements, or (B) the consummation of the Contemplated Transactions, which if individually or in the aggregate were not given or obtained, would reasonably be expected to prevent or materially delay the ability of the Company to consummate the Contemplated Transactions. The Company Board has taken and will take all actions necessary to ensure that the restrictions applicable to business combinations contained in Section 203 of the DGCL are, and will be, inapplicable to the execution, delivery and performance of this Agreement and to the consummation of the Contemplated Transactions. No Takeover Statute or similar Law applies or purports to apply to the Merger, this Agreement, the Company Stockholder Support Agreements, the Company Lock-up Agreements, or any of the Contemplated Transactions.

2.6 ***Capitalization***.

(a) The authorized Company Capital Stock as of the date of this Agreement consists of (i) 5,000 shares of Company Common Stock, par value $1.000000 per share, of which 586 shares have been issued and are outstanding as of the date of this Agreement, and (ii) 1,200 shares of preferred stock, par value $1.000000 per share (the "***Company Preferred Stock***"), of which 723 have been issued and are outstanding as of the date of this Agreement, consisting of 420 shares of Series A Preferred Stock and 303 shares of Series B Preferred Stock. The Company does not hold any shares of its capital stock in its treasury. *Section 2.6(a)* of the Company Disclosure Schedule lists, as of the date of this Agreement (A) each record holder of issued and outstanding Company Capital Stock and the number and type of shares of Company Capital Stock held by such holder; and (B)(1) each holder of issued and outstanding Company Convertible Notes; (2) the underlying principal amount of such Company Convertible Notes; and (3) the maturity date of each such Company Convertible Note. Each share of Company Preferred Stock is convertible into one share of Company Common Stock.

(b) All of the outstanding shares of Company Common Stock and Company Preferred Stock have been duly authorized and validly issued, and are fully paid and nonassessable. Except as set forth in the Investor Agreements, none of the outstanding shares of Company Capital Stock is entitled or subject to any preemptive right, right of participation, right of maintenance or any similar right and none of the outstanding shares of Company Capital Stock is subject to any right of first refusal in favor of the Company. Except as contemplated

herein and in the Investor Agreements, there is no Company Contract relating to the voting or registration of, or restricting any Person from purchasing, selling, pledging or otherwise disposing of (or granting any option or similar right with respect to), any shares of Company Capital Stock. The Company is not under any obligation, nor is it bound by any Contract pursuant to which it may become obligated, to repurchase, redeem or otherwise acquire any outstanding shares of Company Capital Stock or other securities. *Section 2.6(b)* of the Company Disclosure Schedule accurately and completely lists all repurchase rights held by the Company, and forfeiture obligations of any holder, with respect to shares of Company Capital Stock (including shares issued pursuant to the exercise of stock options).

(c) Except for the Company's 2018 Stock Option Plan (the "***Company Plan***"), the Company does not have any stock option plan or any other plan, program, agreement or arrangement providing for any equity-based compensation for any Person. Pursuant to the terms of the Company Plan, the maximum number of shares of Common Stock that may be issued under the Company Plan shall be not more than ten percent (10%) of the then outstanding shares of Company Capital Stock on a fully-diluted basis. As of the date of this Agreement, no shares of Company Common Stock have been issued upon the exercise of Company Options previously granted and are currently outstanding, and 84 shares of Common Stock have been reserved for issuance upon the exercise of Company Options previously granted under the Company Plan. *Section 2.6(c)* of the Company Disclosure Schedule sets forth the following information with respect to each Company Option outstanding as of the date of this Agreement: (i) the name of the optionee; (ii) the number of shares of Company Common Stock subject to such Company Option at the time of grant; (iii) the number of shares of Company Common Stock subject to such Company Option as of the date of this Agreement; (iv) the exercise price of such Company Option; (v) the date on which such Company Option was granted; (vi) the applicable vesting schedule, including the number of vested and unvested shares as of the date of this Agreement and any acceleration provisions; (vii) the date on which such Company Option expires; and (viii) whether such Company Option is intended to constitute an "incentive stock option" (as defined in the Code) or a non-qualified stock option. The Company has made available to Parent an accurate and complete copy of the Company Plan and all stock option agreements evidencing outstanding options granted thereunder. No vesting of Company Options will accelerate in connection with the closing of the Contemplated Transactions.

(d) Except for the Company Preferred Stock and the Company Convertible Notes set forth on *Section 2.6(a)* of the Company Disclosure Schedule and the Company Options set forth on *Section 2.6(c)* of the Company Disclosure Schedule, there is no: (i) outstanding subscription, option, call, warrant or right (whether or not currently exercisable) to acquire any shares of the capital stock or other securities of the Company or any of its Subsidiaries; (ii) outstanding security, instrument or obligation that is or may become convertible into or exchangeable for any shares of the capital stock or other securities of the Company or any of its Subsidiaries; or (iii) condition or circumstance that could be reasonably likely to give rise to or provide a basis for the assertion of a claim by any Person to the effect that such Person is entitled to acquire or receive any shares of capital stock or other securities of the Company or any of its Subsidiaries. There are no outstanding or authorized stock appreciation, phantom stock, profit participation or other similar rights with respect to the Company or any of its Subsidiaries.

(e) All outstanding shares of Company Common Stock, Company Preferred Stock, Company Options, Company Convertible Notes and other securities of the Company have been issued and granted in material compliance with (i) the Organizational Documents of the

Company in effect as of the relevant time and all applicable securities Laws and other applicable Law, and (ii) all requirements set forth in applicable Contracts.

(f) All distributions, dividends, repurchases and redemptions of the Company Capital Stock or other equity interests of the Company were undertaken in material compliance with (i) the Organizational Documents of the Company in effect as of the relevant time and all applicable securities Laws and other applicable Law, and (ii) all requirements set forth in applicable Contracts.

2.7 ***Financial Statements***.

(a) The Company has provided to Parent true and complete copies of (i) the Company's unaudited consolidated balance sheets at December 31, 2018 and 2017, together with related unaudited consolidated statements of income, stockholders' equity and cash flows, and notes thereto, of the Company for the fiscal years then ended and (ii) the Company Unaudited Interim Balance Sheet, together with the unaudited consolidated statements of income, stockholders' equity and cash flows of the Company for the period reflected in the Company Unaudited Interim Balance Sheet (collectively, the "***Company Financial Statements***"). The Company Financial Statements were prepared in accordance with GAAP (except that the Company Financial Statements may not contain footnotes and are subject to normal and recurring year-end adjustments, none of which are material) and fairly present, in all material respects, the financial position and operating results of the Company and its consolidated Subsidiaries as of the dates and for the periods indicated therein.

(b) Each of the Company and its Subsidiaries maintains accurate books and records reflecting their assets and liabilities and maintains a system of internal accounting controls designed to provide reasonable assurance that: (i) transactions are executed in accordance with management's general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of the financial statements of the Company and its Subsidiaries and to maintain accountability of the Company's and its Subsidiaries' assets; (iii) access to the Company's and its Subsidiaries' assets is permitted only in accordance with management's general or specific authorization; (iv) the recorded accountability for the Company's and its Subsidiaries' assets is compared with the existing assets at regular intervals and appropriate action is taken with respect to any differences; and (v) accounts, notes and other receivables and inventory are recorded accurately, and proper and adequate procedures are implemented to effect the collection thereof on a current and timely basis. The Company and each of its Subsidiaries maintains internal control over financial reporting that provides reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP.

(c) Neither the Company nor any of its Subsidiaries is a party to or bound by "off-balance sheet arrangements" (as defined in Item 303(e) of Regulation S-K under the Exchange Act).

(d) Since July 25, 2017, the date of the Company's incorporation, there have been no formal internal investigations regarding financial reporting or accounting policies and practices discussed with, reviewed by or initiated at the direction of the chief executive officer, chief financial officer or general counsel of the Company, the Company Board or any committee thereof. Since July 25, 2017, neither the Company nor its independent auditors have identified (i) any significant deficiency or material weakness in the design or operation of the system of internal accounting controls utilized by the Company and its Subsidiaries, (ii) any fraud, whether or not material, that involves the Company, any of its Subsidiaries, the Company's management or other employees who have a role in the preparation of financial statements or

the internal accounting controls utilized by the Company and its Subsidiaries or (iii) any claim or allegation regarding any of the foregoing.

2.8 ***Absence of Changes***. Except as set forth on *Section 2.8* of the Company Disclosure Schedule, between the date of the Company Unaudited Interim Balance Sheet and the date of this Agreement, the Company has conducted its business only in the Ordinary Course of Business (except for the execution and performance of this Agreement and the discussions, negotiations and transactions related thereto) and there has not been any (a) Company Material Adverse Effect or (b) action, event or occurrence that would have required the consent of Parent pursuant to *Section 4.2(b)* had such action, event or occurrence taken place after the execution and delivery of this Agreement.

2.9 ***Absence of Undisclosed Liabilities***. As of the date hereof, neither the Company nor any of its Subsidiaries has any liability, indebtedness, obligation or expense of any kind, whether accrued, absolute, contingent, matured or unmatured (each a "***Liability***"), individually or in the aggregate, of a type required to be recorded or reflected on a balance sheet or disclosed in the footnotes thereto under GAAP, except for: (a) Liabilities disclosed, reflected or reserved against in the Company Unaudited Interim Balance Sheet; (b) Liabilities that have been incurred by the Company or its Subsidiaries since the date of the Company Unaudited Interim Balance Sheet in the Ordinary Course of Business; (c) Liabilities for performance of obligations of the Company or any of its Subsidiaries under Company Contracts; (d) Liabilities incurred in connection with the Contemplated Transactions; (e) Liabilities which would not, individually or in the aggregate, reasonably be expected to be material to the Company; and (f) Liabilities described in *Section 2.9* of the Company Disclosure Schedule.

2.10 ***Title to Assets***. Each of the Company and its Subsidiaries owns, and has good and valid title to, or, in the case of leased properties and assets, valid leasehold interests in, all tangible properties or tangible assets and equipment used or held for use in its business or operations or purported to be owned by it that are material to the Company, its Subsidiaries or their business, including: (a) all tangible assets reflected on the Company Unaudited Interim Balance Sheet; and (b) all other tangible assets reflected in the books and records of the Company or any of its Subsidiaries as being owned by the Company or such Subsidiary. All of such assets are owned or, in the case of leased assets, leased by the Company or any of its Subsidiaries free and clear of any Encumbrances, other than Permitted Encumbrances.

2.11 ***Real Property; Leasehold***. Neither the Company nor any of its Subsidiaries owns or has ever owned any real property. The Company has made available to Parent (a) an accurate and complete list of all real properties with respect to which the Company directly or indirectly holds a valid leasehold interest as well as any other real estate that is in the possession of, or occupied or leased by the Company or any of its Subsidiaries, and (b) copies of all leases under which any such real property is possessed, occupied or leased (the "***Company Real Estate Leases***"), each of which is in full force and effect, with no existing material default thereunder. The Company's possession, occupancy, lease and/or operation of each such leased property conforms to all applicable Laws in all material respects, and the Company has exclusive possession of each such leased property and has not granted any occupancy rights to tenants or licensees with respect to such leased property. In addition, each such leased property and leasehold interest is free and clear of all Encumbrances other than Permitted Encumbrances. Neither the Company nor any of its Subsidiaries has received any written notice of existing, pending or threatened condemnation proceedings affecting such leased property or existing, pending or threatened zoning, building code or other moratorium proceedings, or similar matters which could reasonably be expected to adversely affect the ability to operate on the leased property as currently operated.

2.12 ***Intellectual Property***.

(a) *Section 2.12(a)* of the Company Disclosure Schedule identifies (i) all Registered IP owned in whole or in part by, or exclusively licensed to or exclusively sublicensed to, the Company or its Subsidiaries (collectively, "***Company Registered IP***"), including, with respect to each registration and application: (A) the nature of the Intellectual Property Right, (B) the name of the applicant/registrant/owner/assignee/licensee/sublicensee, (C) the jurisdiction of application/registration, (D) the application or registration number, (E) any other co-owners, (F) legal status, and (G) in case of a sublicense the nature of the right granted to the Company; (ii) all unregistered Company IP owned in whole or in part by, or exclusively licensed to or sublicensed to, the Company or its Subsidiaries, including without limitation unregistered trademarks, copyrights (including software), trade secrets, know-how, domain names, trade names, proprietary or confidential information; and (iii) all other Company IP used or held for use in the business as currently conducted. To the Knowledge of the Company, each of the patents and patent applications included in the Company Registered IP properly identifies by name each and every inventor of the inventions claimed therein as determined in accordance with applicable Laws of the United States. As of the date of this Agreement, no cancellation, interference, opposition, reissue, reexamination or other proceeding of any nature (other than office actions or similar communications issued by any Governmental Body in the ordinary course of prosecution of any pending applications for registration) is outstanding, pending, threatened in writing or, to the Knowledge of the Company, threatened, in which the scope, validity, enforceability or ownership of any Company Registered IP is being or has been contested or challenged.

(b) Except as has not had and would not reasonably be expected to have, individually or in the aggregate, a Company Material Adverse Effect, the Company or its Subsidiaries owns, exclusively licensed or exclusively sublicensed all right, title and interest in and to all Company IP (other than as disclosed on *Section 2.12(b)* of the Company Disclosure Schedule), free and clear of all Encumbrances other than Permitted Encumbrances. Each Company Associate involved in the creation or development of any Company IP, pursuant to such Company Associate's activities on behalf of the Company or its Subsidiaries, has signed a written agreement containing an assignment of such Company Associate's rights in such Company IP to the Company or its Subsidiaries and confidentiality provisions protecting the Company IP.

(c) To the Knowledge of the Company, no funding, facilities or personnel of any Governmental Body or any university, college, research institute or other educational institution has been used to create Company IP, except for any such funding or use of facilities or personnel that does not result in such Governmental Body or institution obtaining ownership or usage rights, or other licensable or sublicensable rights, to such Company IP or the right to receive royalties for the practice of such Company IP.

(d) *Section 2.12(d)* of the Company Disclosure Schedule sets forth each agreement pursuant to which the Company (i) is granted a license (including a covenant not to sue) or sublicense under or other right or interest in any Intellectual Property Right owned by any third party (each a "***Company In-bound License***") or (ii) grants to any third party a license (including a covenant not to sue) or sublicense under or other right or interest in any Company IP or Intellectual Property Right licensed to the Company or its Subsidiaries under a Company In-bound License (each a "***Company Out-bound License***") (*provided*, that, Company In-bound Licenses shall not include, when entered into in the Ordinary Course of Business, material transfer agreements, clinical trial agreements, services agreements, licenses ancillary to the purchase of reagents or other materials, non-disclosure agreements, commercially available Software-as-a-Service offerings, or off-the-shelf software licenses; and Company Out-bound Licenses shall not include, when entered into in the Ordinary Course of Business,

material transfer agreements, clinical trial agreements and services agreements that grant non-exclusive licenses solely for the purpose of conducting activities for the Company or non-disclosure agreements).

(e) To the Knowledge of the Company, the operation of the businesses of the Company and its Subsidiaries as currently conducted, and as conducted during the six years preceding the date of this Agreement, does not and has not infringed, misappropriated or otherwise violated any valid and enforceable Registered IP or any other Intellectual Property Right owned by any other Person and, to the Company's Knowledge, no other Person is infringing, misappropriating or otherwise violating any Company IP or any Intellectual Property Rights exclusively licensed or sublicensed to the Company or its Subsidiaries. As of the date of this Agreement, no Legal Proceeding is pending or threatened in writing (or, to the Knowledge of the Company, is threatened) (A) against the Company or its Subsidiaries alleging that the operation of the businesses of the Company or its Subsidiaries infringes or constitutes the misappropriation or other violation of any Intellectual Property Rights of another Person or (B) by the Company or its Subsidiaries alleging that another Person has infringed, misappropriated or otherwise violated any of the Company IP or any Intellectual Property Rights exclusively licensed to the Company or its Subsidiaries. Since July 25, 2017, neither the Company nor its Subsidiaries has received any written notice or other written communication alleging that the operation of the business of the Company or its Subsidiaries infringes or constitutes the misappropriation or other violation of any Intellectual Property Right of another Person.

(f) None of the Company IP or, to the Knowledge of the Company, any Intellectual Property Rights exclusively licensed to or exclusively sublicensed to the Company or its Subsidiaries is subject to any threatened, pending or outstanding injunction, directive, order, judgment or other disposition of dispute that restricts the use, transfer, registration or licensing by the Company or its Subsidiaries of any such Company IP or Intellectual Property Rights exclusively licensed to the Company or its Subsidiaries.

(g) To the Knowledge of the Company, the Company, its Subsidiaries and the operation of the Company's and its Subsidiaries' business are in material compliance with all Laws pertaining to data privacy and data security of any personally identifiable information and sensitive business information (collectively, "***Sensitive Data***"). To the Knowledge of the Company, since July 25, 2017, there have been (i) no material losses or thefts of data or security breaches relating to Sensitive Data used in the business of the Company or its Subsidiaries, (ii) no violations of any security policy of the Company regarding any such Sensitive Data used in the business of the Company or its Subsidiaries, and (iii) no unauthorized access, unauthorized use or unintended or improper disclosure of any Sensitive Data used in the business of the Company or its Subsidiaries. The Company has and, to its Knowledge, each of its service providers that has access to Sensitive Data in connection with conducting services for the Company has, taken reasonable actions and implemented policies and procedures that are reasonably appropriate to protect and maintain the security of all Sensitive Data.

2.13 ***Agreements, Contracts and Commitments***.

(a) *Section 2.13(a)* of the Company Disclosure Schedule lists the following Company Contracts in effect as of the date of this Agreement other than any Company Benefit Plans (each, a "***Company Material Contract***" and collectively, the "***Company Material Contracts***"):

(i) each Company Contract relating to any agreement of indemnification or guaranty not entered into in the Ordinary Course of Business;

(ii) each Company Contract containing (A) any covenant limiting the freedom of the Company, its Subsidiaries or the Surviving Corporation to engage in any line of business or compete with any Person, (B) any most-favored pricing arrangement or similar term by which any Person is or could become entitled to any benefit, right or privilege that must be at least as favorable to such Person as those offered to another Person, (C) any exclusivity provision, right of first refusal or right of first negotiation or similar covenant, or (D) any non-solicitation provision, in each case, other than restrictions or limitations that do not or would not materially affect the ability of the Company to conduct its business;

(iii) each Company Contract relating to capital expenditures and requiring payments after the date of this Agreement in excess of $100,000 pursuant to its express terms and not cancelable without penalty;

(iv) each Company Contract relating to the disposition or acquisition of material assets outside of the Ordinary Course of Business and requiring payments after the date of this Agreement in excess of $100,000 or any ownership interest in any Entity;

(v) each Company Contract relating to any mortgages, indentures, loans, notes or credit agreements, security agreements or other agreements or instruments relating to the borrowing of money or extension of credit (whether as debtor or creditor) or creating any material Encumbrances with respect to any assets of the Company or any of its Subsidiaries or any advancement or loan of money or equipment or other debt obligations to any employee or independent contractor, other than advancement of expenses in the Ordinary Course of Business;

(vi) each Company Contract requiring payment by or to the Company after the date of this Agreement in excess of $100,000 pursuant to its express terms relating to: (A) any distribution agreement (identifying any that contain exclusivity provisions); (B) any agreement involving provision of services or products with respect to any pre-clinical or clinical development activities of the Company; (C) any dealer, distributor, joint marketing, alliance, joint venture, cooperation, development or other agreement currently in force under which the Company has continuing obligations to develop or market any product, technology or service, or any agreement pursuant to which the Company has continuing obligations to develop any Intellectual Property Rights that will not be owned, in whole or in part, by the Company; or (D) any Contract to license or engage any third party to manufacture or produce any product, drug substance, service or technology of the Company, any Contract for raw materials or warehousing of products or any Contract to sell, distribute or commercialize any products or service of the Company;

(vii) each Company Contract with any Person, including any financial advisor, broker, finder, investment banker or other Person, providing advisory services to the Company in connection with the Contemplated Transactions;

(viii) each Company Real Estate Lease;

(ix) each Company Contract with any Governmental Body;

(x) each Company Out-bound License and Company In-bound License;

(xi) each Company Contract containing any royalty, dividend or similar arrangement based on the revenues or profits of the Company or any of its Subsidiaries, or obligation to pay any royalties, fees or other payments to any owner, licensor, or other claimant to any Intellectual Property Rights;

(xii) each Company Contract, offer letter, employment agreement, or independent contractor agreement with any employee or service provider that (A) is not immediately terminable at-will by the Company without notice, severance, or other cost or liability, or (B) provides for retention payments, change of control payments, severance, accelerated vesting, an exercise period of more than three months following a termination of service or any payment or benefit that may or will become due as a result of the Merger;

(xiii) any other Company Contract that is not terminable at will (with no penalty or payment) by the Company or its Subsidiaries, as applicable, and (A) which involves payment or receipt by the Company or its Subsidiaries after the date of this Agreement under any such agreement, contract or commitment of more than $100,000 in the aggregate, or obligations after the date of this Agreement in excess of $100,000 in the aggregate, or (B) that is material to the business or operations of the Company and its Subsidiaries, taken as a whole; or

(xiv) each Subscription Agreement.

(b) The Company has delivered or made available to Parent accurate and complete copies of all Company Material Contracts, including all amendments thereto. Except as set forth in *Section 2.13(b)* of the Company Disclosure Schedule, there are no Company Material Contracts that are not in written form. Neither the Company nor any of its Subsidiaries has, nor to the Company's Knowledge, as of the date of this Agreement has any other party to a Company Material Contract, materially breached, violated or defaulted under, or received notice that it materially breached, violated or defaulted under, any of the terms or conditions of any Company Material Contract. As to the Company and its Subsidiaries, as of the date of this Agreement, each Company Material Contract is valid, binding, enforceable and in full force and effect, subject to the Enforceability Exceptions. As of the date of this Agreement, no Person is renegotiating, or has a right pursuant to the terms of any Company Material Contract to change, any material amount paid or payable to the Company under any Company Material Contract or any other material term or provision of any Company Material Contract, and no Person has indicated in writing to the Company that it desires to renegotiate, modify, not renew or cancel any Company Material Contract.

2.14 ***Compliance; Permits; Restrictions***.

(a) The Company and each of its Subsidiaries are, and since July 25, 2017 have been, in compliance in all material respects with all applicable Laws, including the Federal Food, Drug, and Cosmetic Act ("***FDCA***"), the Food and Drug Administration ("***FDA***") regulations adopted thereunder, and any other similar Law administered or promulgated by the FDA or other comparable Governmental Body responsible for regulation of the development, clinical testing, manufacturing, sale, marketing, distribution and importation or exportation of drug and biopharmaceutical products (each, a "***Drug Regulatory Agency***"), except for any noncompliance, either individually or in the aggregate, which would not be material to the Company. No investigation, claim, suit, proceeding, audit or other action by any Governmental Body is pending or, to the Knowledge of the Company, threatened in writing against the Company or any of its Subsidiaries. There is no agreement, judgment, injunction, order or decree binding upon the Company or any of its Subsidiaries which (i) has or would reasonably be expected to have the effect of prohibiting or materially impairing any business practice of the Company or any of its Subsidiaries, any acquisition of material property by the Company or any of its Subsidiaries or the conduct of business by the Company or any of its Subsidiaries as currently conducted, (ii) would be reasonably likely to have an adverse effect on the Company's ability to comply with or perform any covenant or obligation under this Agreement, or (iii) would be

reasonably likely to have the effect of preventing, delaying, making illegal or otherwise interfering with the Contemplated Transactions.

(b) To the Knowledge of the Company, the Company and its Subsidiaries hold all required Governmental Authorizations which are material to the operation of the business of the Company and its Subsidiaries as currently conducted (the "***Company Permits***"). *Section 2.14(b)* of the Company Disclosure Schedule identifies each Company Permit. Each of the Company and its Subsidiaries is in material compliance with the terms of the Company Permits. No Legal Proceeding is pending or, to the Knowledge of the Company, threatened, which seeks to revoke, limit, suspend, or materially modify any Company Permit.

(c) There are no proceedings pending or, to the Knowledge of the Company, threatened with respect to an alleged violation by the Company or any of its Subsidiaries of the FDCA, FDA regulations adopted thereunder, the Public Health Service Act or any other similar Law administered or promulgated by any Drug Regulatory Agency.

(d) All clinical, pre-clinical and other studies and tests conducted by or on behalf of, or sponsored by, the Company or its Subsidiaries, or in which the Company or its Subsidiaries or their respective current products or product candidates have participated, were and, if still pending, are being conducted in all material respects in accordance with standard medical and scientific research procedures and in compliance in all material respects with the applicable regulations of any applicable Drug Regulatory Agency and other applicable Law, including 21 C.F.R. Parts 50, 54, 56, 58 and 312. No preclinical or clinical trial conducted by or on behalf of the Company or any of its Subsidiaries has been terminated or suspended prior to completion for safety or non-compliance reasons. Since July 25, 2017, neither the Company nor any of its Subsidiaries has received any notices, correspondence, or other communications from any Drug Regulatory Agency requiring or threatening to initiate the termination or suspension of any clinical studies conducted by or on behalf of, or sponsored by, the Company or any of its Subsidiaries or in which the Company or any of its Subsidiaries or their respective current products or product candidates have participated.

(e) Neither the Company nor any of its Subsidiaries is the subject of any pending or, to the Knowledge of the Company, threatened investigation in respect of its business or products by the FDA pursuant to its "Fraud, Untrue Statements of Material Facts, Bribery, and Illegal Gratuities" Final Policy set forth in 56 Fed. Reg. 46191 (September 10, 1991) and any amendments thereto. To the Knowledge of the Company, neither the Company nor any of its Subsidiaries has committed any acts, made any statement, or failed to make any statement, in each case in respect of its business or products that would violate the FDA's "Fraud, Untrue Statements of Material Facts, Bribery, and Illegal Gratuities" Final Policy, and any amendments thereto. None of the Company, any of its Subsidiaries or any of their respective officers, employees or, to the Knowledge of the Company, agents has been convicted of any crime or engaged in any conduct that could result in a debarment or exclusion (i) under 21 U.S.C. Section 335a or (ii) any similar applicable Law. No debarment or exclusionary claims, actions, proceedings or investigations in respect of their business or products are pending or, to the Knowledge of the Company, threatened against the Company, any of its Subsidiaries or any of their respective officers, employees or, to the Knowledge of the Company, agents.

(f) The Company and its Subsidiaries have complied with all Laws relating to patient, medical or individual health information, including the Health Insurance Portability and Accountability Act of 1996 and its implementing regulations promulgated thereunder, all as amended from time to time (collectively "***HIPAA***"), including the standards for the privacy of Individually Identifiable Health Information at 45 C.F.R. Parts 160 and 164, Subparts A and

E, the standards for the protection of Electronic Protected Health Information set forth at 45 C.F.R. Part 160 and 45 C.F.R. Part 164, Subpart A and Subpart C, the standards for transactions and code sets used in electronic transactions at 45 C.F.R. Part 160, Subpart A and Part 162, and the standards for Breach Notification for Unsecured Protected Health Information at 45 C.F.R. Part 164, Subpart D, all as amended from time to time. The Company and its Subsidiaries have entered into, where required, and are in compliance in all material respects with the terms of all Business Associate (as defined in HIPAA) agreements ("***Business Associate Agreements***") to which the Company or a Subsidiary is a party or otherwise bound. The Company and its Subsidiaries have created and maintained written policies and procedures to protect the privacy of all protected health information, provide training to all employees and agents as required under HIPAA, and have implemented security procedures, including physical, technical and administrative safeguards, to protect all personal information and Protected Health Information stored or transmitted in electronic form. Neither the Company nor its Subsidiaries have received written notice from the Office for Civil Rights for the U.S. Department of Health and Human Services or any other Governmental Body of any allegation regarding its failure to comply with HIPAA or any other state law or regulation applicable to the protection of individually identifiable health information or personally identifiable information. No successful Security Incident, Breach of Unsecured Protected Health Information or breach of personally identifiable information under applicable state or federal laws have occurred with respect to information maintained or transmitted to the Company, any of its Subsidiaries, or an agent or third party subject to a Business Associate Agreement with the Company or a Subsidiary of the Company. The Company is currently submitting, receiving and handling or is capable of submitting receiving and handling transactions in accordance with the Standard Transaction Rule. All capitalized terms in this *Section 2.14(f)* not otherwise defined in this Agreement shall have the meanings set forth under HIPAA.

2.15 ***Legal Proceedings; Orders***.

(a) As of the date of this Agreement, there is no material pending Legal Proceeding and, to the Knowledge of the Company, no Person has threatened in writing to commence any Legal Proceeding: (i) that involves (A) the Company, (B) any of its Subsidiaries, (C) any Company Associate (in his or her capacity as such) or (D) any of the material assets owned or used by the Company or its Subsidiaries; or (ii) that challenges, or that would have the effect of preventing, delaying, making illegal or otherwise interfering with, the Contemplated Transactions.

(b) Except as set forth in *Section 2.15(b)* of the Company Disclosure Schedule, since July 25, 2017 through the date of this Agreement, no Legal Proceeding has been pending against the Company that resulted in material liability to the Company.

(c) There is no order, writ, injunction, judgment or decree to which the Company or any of its Subsidiaries, or any of the material assets owned or used by the Company or any of its Subsidiaries, is subject. To the Knowledge of the Company, no officer or employee of the Company or any of its Subsidiaries is subject to any order, writ, injunction, judgment or decree that prohibits such officer or employee from engaging in or continuing any conduct, activity or practice relating to the business of the Company or any of its Subsidiaries or to any material assets owned or used by the Company or any of its Subsidiaries.

2.16 ***Tax Matters***.

(a) The Company and each of its Subsidiaries have timely filed all income Tax Returns and other material Tax Returns, other than Tax Returns subject to a valid extension granted in the ordinary course of business, that they were required to file under applicable Law. All such

Tax Returns are correct and complete in all material respects and have been prepared in compliance with all applicable Law. No claim has ever been made by any Governmental Body in any jurisdiction where the Company or any of its Subsidiaries does not file a particular Tax Return or pay a particular Tax that the Company or such Subsidiary is subject to taxation by that jurisdiction.

(b) All income and other material Taxes due and owing by the Company or any of its Subsidiaries on or before the date hereof (whether or not shown on any Tax Return) have been fully paid. The unpaid Taxes of the Company and its Subsidiaries did not, as of the date of the Company Unaudited Interim Balance Sheet, materially exceed the reserve for Tax liability (excluding any reserve for deferred Taxes established to reflect timing differences between book and Tax items) set forth on the face of the Company Unaudited Interim Balance Sheet. Since the date of the Company Unaudited Interim Balance Sheet, neither the Company nor any of its Subsidiaries has incurred any material Liability for Taxes outside the Ordinary Course of Business.

(c) All Taxes that the Company or any of its Subsidiaries are or were required by Law to withhold or collect have been duly and timely withheld or collected in all material respects on behalf of its respective employees, independent contractors, stockholders, lenders, customers or other third parties and, have been timely paid to the proper Governmental Body or other Person or properly set aside in accounts for this purpose.

(d) There are no Encumbrances for material Taxes (other than Taxes not yet delinquent) upon any of the assets of the Company or any of its Subsidiaries.

(e) No deficiencies for income or other material Taxes with respect to the Company or any of its Subsidiaries have been claimed, proposed or assessed by any Governmental Body in writing. There are no pending or ongoing, and to the Knowledge of the Company, threatened audits, assessments or other actions for or relating to any liability in respect of a material amount of Taxes of the Company or any of its Subsidiaries. Neither the Company nor any of its Subsidiaries (or any of their predecessors) has waived any statute of limitations in respect of any income or other material Taxes or agreed to any extension of time with respect to any income or other material Tax assessment or deficiency.

(f) Neither the Company nor any of its Subsidiaries has been a United States real property holding corporation within the meaning of Section 897(c)(2) of the Code during the applicable period specified in Section 897(c)(1)(A)(ii) of the Code.

(g) Neither the Company nor any of its Subsidiaries is a party to any Tax allocation agreement, Tax sharing agreement, Tax indemnity agreement, or similar agreement or arrangement, other than customary commercial contracts entered into in the Ordinary Course of Business the principal subject matter of which is not Taxes.

(h) None of Parent, the Company nor any of its Subsidiaries will be required to include any material item of income in, or exclude any material item of deduction from, taxable income for any Tax period (or portion thereof) ending after the Closing Date as a result of any: (i) change in method of accounting for Tax purposes; (ii) use of an improper method of accounting for a Tax period ending on or prior to the Closing Date; (iii) "closing agreement" as described in Section 7121 of the Code (or any similar provision of state, local or foreign Law) executed on or prior to the Closing Date; (iv) intercompany transaction or excess loss account described in Treasury Regulations under Section 1502 of the Code (or any similar provision of state, local or foreign Law); (v) installment sale or open transaction disposition made on or prior to the Closing Date; (vi) prepaid amount received or deferred revenue accrued on or prior to the Closing Date; or (vii) election under Section 108(i) of the Code (or

any similar provision of state, local or foreign Law) made on or prior to the Closing Date. The Company has not made any election under Section 965(h) of the Code.

(i) Neither the Company nor any of its Subsidiaries has ever been (i) a member of a consolidated, combined or unitary Tax group (other than such a group the common parent of which is the Company) or (ii) a party to any joint venture, partnership, or other arrangement that is treated as a partnership for U.S. federal income Tax purposes. Neither the Company nor any of its Subsidiaries has any Liability for any material Taxes of any Person (other than the Company and any of its Subsidiaries) under Treasury Regulations Section 1.1502-6 (or any similar provision of state, local, or foreign Law), or as a transferee or successor.

(j) Neither the Company nor any of its Subsidiaries has, since July 25, 2017, distributed stock of another Person, or had its stock distributed by another Person, in a transaction that was purported or intended to be governed in whole or in part by Section 355 of the Code or Section 361 of the Code (or any similar provisions of state, local or foreign Law).

(k) Except as set forth on *Section 2.16(k)* of the Company Disclosure Schedule, neither the Company nor any of its Subsidiaries (i) is a "controlled foreign corporation" as defined in Section 957 of the Code; (ii) is a "passive foreign investment company" within the meaning of Section 1297 of the Code; (iii) has ever had a permanent establishment (within the meaning of an applicable Tax treaty) or otherwise had an office or fixed place of business in a country other than the country in which it is organized; (iv) is or was a "surrogate foreign corporation" within the meaning of Section 7874(a)(2)(B) or is treated as a U.S. corporation under Section 7874(b) of the Code; or (v) was created or organized in the U.S. such that such entity would be taxable in the U.S. as a domestic entity pursuant to the dual charter provision of Treasury Regulations Section 301.7701-5(a).

(l) Neither the Company nor any of its Subsidiaries has participated in or been a party to a transaction that, as of the date of this Agreement, constitutes a "listed transaction" that is required to be reported to the IRS pursuant to Section 6011 of the Code and applicable Treasury Regulations thereunder.

(m) Neither the Company nor any of its Subsidiaries has taken or agreed to take any action or knows of any fact that would reasonably be expected to prevent the Merger from qualifying for the Intended Tax Treatment.

For purposes of this *Section 2.16*, each reference to the Company or any of its Subsidiaries shall be deemed to include any Person that was liquidated into, merged with, or is otherwise a predecessor to, the Company or such Subsidiary, respectively.

2.17 ***Employee and Labor Matters; Benefit Plans***.

(a) *Section 2.17(a)* of the Company Disclosure Schedule is a list of all material Company Benefit Plans, including, without limitation, each Company Benefit Plan that provides for retirement, change in control, stay or retention, deferred compensation, incentive compensation, severance or retiree medical or life insurance benefits. "***Company Benefit Plan***" means each (i) "employee benefit plan" as defined in Section 3(3) of ERISA and (ii) other pension, retirement, deferred compensation, excess benefit, profit sharing, bonus, incentive, equity or equity-based, phantom equity, employment (other than at-will employment offer letters on the Company's standard form, other than individual Company Options or other compensatory equity award agreements made pursuant to the Company's standard forms, in which case only representative standard forms of such agreements shall be scheduled and other than consulting agreements that may be terminated with 30 days or less days of notice), consulting, severance, change-of-control, retention, health, life, disability, group insurance, paid-time off, holiday, welfare and fringe benefit plan, program, agreement, contract, or

arrangement (whether written or unwritten, qualified or nonqualified, funded or unfunded and including any that have been frozen), in any case, maintained, contributed to, or required to be contributed to, by the Company or any of its Subsidiaries or Company ERISA Affiliates for the benefit of any current or former employee, director, officer or independent contractor of the Company or any of its Subsidiaries or under which the Company or any of its Subsidiaries has any actual or contingent liability (including, without limitation, as to the result of it being treated as a single employer under Code Section 414 with any other person).

(b) As applicable with respect to each material Company Benefit Plan, the Company has made available to Parent, true and complete copies of (i) each material Company Benefit Plan, including all amendments thereto, and in the case of an unwritten material Company Benefit Plan, a written description thereof, (ii) all current trust documents, investment management contracts, custodial agreements, administrative services agreements and insurance and annuity contracts relating thereto, (iii) the current summary plan description and each summary of material modifications thereto, (iv) the most recently filed annual reports with any Governmental Body (*e.g.*, Form 5500 and all schedules thereto), (v) the most recent IRS determination, opinion or advisory letter, (vi) the most recent summary annual reports, nondiscrimination testing reports, actuarial reports, financial statements and trustee reports, (vii) all records, notices and filings concerning IRS or Department of Labor or other Governmental Body audits or investigations, "prohibited transactions" within the meaning of Section 406 of ERISA or Section 4975 of the Code, (viii) all policies and procedures established to comply with the privacy and security rules of HIPAA and (ix) any written reports constituting a valuation of the Company Capital Stock for purposes of Sections 409A or 422 of the Code, whether prepared internally by the Company or by an outside, third-party valuation firm.

(c) Each Company Benefit Plan has been maintained, operated and administered in compliance in all material respects with its terms and any related documents or agreements and the applicable provisions of ERISA, the Code and all other Laws.

(d) The Company Benefit Plans which are "employee pension benefit plans" within the meaning of Section 3(2) of ERISA and which are intended to meet the qualification requirements of Section 401(a) of the Code have received determination or opinion letters from the IRS on which they may currently rely to the effect that such plans are qualified under Section 401(a) of the Code and the related trusts are exempt from federal income Taxes under Section 501(a) of the Code, respectively, and to the Knowledge of the Company, nothing has occurred that would reasonably be expected to materially adversely affect the qualification of such Company Benefit Plan or the tax exempt status of the related trust.

(e) Neither the Company, any of its Subsidiaries nor any Company ERISA Affiliate maintains, contributes to, is required to contribute to, or has any actual or contingent liability with respect to, (i) any "employee pension benefit plan" (within the meaning of Section 3(2) of ERISA) that is subject to Title IV or Section 302 of ERISA or Section 412 of the Code, (ii) any "multiemployer plan" (within the meaning of Section 3(37) of ERISA), (iii) any "multiple employer plan" (within the meaning of Section 413 of the Code) or (iv) any "multiple employer welfare arrangement" (within the meaning of Section 3(40) of ERISA).

(f) There are no pending audits or investigations by any Governmental Body involving any Company Benefit Plan, and no pending or, to the Knowledge of the Company, reasonably threatened claims (except for individual claims for benefits payable in the normal operation of the Company Benefit Plans), suits or proceedings involving any Company Benefit Plan, any fiduciary thereof or service provider thereto, in any case except as would not be reasonably expected to result in material liability to the Company or any of its Subsidiaries. All

contributions and premium payments required to have been made under any of the Company Benefit Plans or by applicable Law (without regard to any waivers granted under Section 412 of the Code), have been timely made in all material respects and neither the Company nor any Company ERISA Affiliate has any material liability for any unpaid contributions with respect to any Company Benefit Plan.

(g) Neither the Company, any of its Subsidiaries or Company ERISA Affiliates, nor to the Knowledge of the Company, any fiduciary, trustee or administrator of any Company Benefit Plan, has engaged in, or in connection with the Contemplated Transactions will engage in, any transaction with respect to any Company Benefit Plan which would subject any such Company Benefit Plan, the Company, any of its Subsidiaries or Company ERISA Affiliates or Parent to a material Tax, material penalty or material liability for a "prohibited transaction" under Section 406 of ERISA or Section 4975 of the Code.

(h) No Company Benefit Plan provides death, medical, dental, vision, life insurance or other welfare benefits beyond termination of service or retirement other than coverage mandated by Law and neither the Company nor any of its Subsidiaries or Company ERISA Affiliates has made a written or oral representation promising the same.

(i) Neither the execution of this Agreement, nor the consummation of the Contemplated Transactions (either alone or when combined with the occurrence of any other event, including without limitation, a termination of employment), will (i) result in any payment becoming due to any current or former employee, director, officer, or independent contractor of the Company or any Subsidiary thereof, (ii) increase any amount of compensation or benefits otherwise payable under any Company Benefit Plan, (iii) result in the acceleration of the time of payment, funding or vesting of any benefits under any Company Benefit Plan, (iv) require any contribution or payment to fund any obligation under any Company Benefit Plan or (v) limit the right to merge, amend or terminate any Company Benefit Plan.

(j) Neither the execution of this Agreement, nor the consummation of the Contemplated Transactions (either alone or when combined with the occurrence of any other event, including without limitation, a termination of employment) will result in the receipt or retention by any person who is a "disqualified individual" (within the meaning of Code Section 280G) with respect to the Company and its Subsidiaries of any payment or benefit that is or could be characterized as a "parachute payment" (within the meaning of Code Section 280G), determined without regard to the application of Code Section 280G(b)(5).

(k) The exercise price of each Company Option is not and never has been and can never be less than the fair market value of one share of Company Common Stock as of the grant date of such Company Option.

(l) Each Company Benefit Plan or other agreement, arrangement, practice or program providing for deferred compensation that constitutes a "nonqualified deferred compensation plan" (as defined in Section 409A(d)(1) of the Code and the regulations promulgated thereunder) is, and has been, established, administered and maintained in compliance with the requirements of Section 409A of the Code and the regulations promulgated thereunder in all material respects.

(m) No current or former employee, officer, director, independent contractor or other service provider of the Company or any of its Subsidiaries has any "gross up" agreements with the Company or any of its Subsidiaries or other right or assurance of reimbursement by the Company or any of its Subsidiaries for any Taxes imposed under Code Section 409A or Code Section 4999.

(n) Each Company Benefit Plan maintained outside of the United States (each, a "***Company Foreign Plan***") has obtained from the Governmental Body having jurisdiction with respect to such plan any required determinations that such plan is in material compliance with the Laws of any such Governmental Body.

(o) The assets of each of the Company Foreign Plans (which is an employee pension benefit plan as defined in Section 3(2) of ERISA (whether or not subject to ERISA) or otherwise provides retirement, medical or life insurance benefits following retirement or other termination of service or employment) are at least equal to the liabilities of such plans.

(p) The Company has provided to Parent a true and correct list, as of the date of this Agreement, containing the names of all current full-time, part-time or temporary employees and independent contractors (and indication as such), and, as applicable: (i) the annualized rates of all compensation (including wages, salary or fees, commissions, director's fees, fringe benefits, bonuses, profit sharing payments, and other payments or benefits of any type) each person is eligible to receive; (ii), dates of employment or service; (iii) title and, with respect to independent contractors, a current written description of such person's contracting services; (iv) any eligibility to receive severance, notice of termination, retention payment, change of control payment, or other similar compensation; (v) visa status, if applicable; and (vi) with respect to employees, a designation of whether they are classified as exempt or non-exempt for purposes of the Fair Labor Standards Act, as amended ("***FLSA***") and any similar state, federal or foreign law.

(q) Neither the Company nor any of its Subsidiaries is or has ever been a party to, bound by, or has a duty to bargain under, any collective bargaining agreement or other Contract with a labor union, labor organization, or similar Person representing any of its employees, and there is no labor union, labor organization, or similar Person representing or, to the Knowledge of the Company, purporting to represent or seeking to represent any employees of the Company or its Subsidiaries, including through the filing of a petition for representation election. There is not and has not been in the past three years, nor is there or has there been in the past three years any threat of, any strike, slowdown, work stoppage, lockout, union election petition, demand for recognition, or any similar activity or dispute, or, to the Knowledge of the Company, any union organizing activity, against the Company or any of its Subsidiaries. No event has occurred, and, to the Knowledge of the Company, no condition or circumstance exists, that might directly or indirectly be likely to give rise to or provide a basis for the commencement of any such strike, slowdown, work stoppage, lockout, union election petition, demand for recognition, any similar activity or dispute, or, to the Knowledge of the Company, any union organizing activity.

(r) The Company and each of its Subsidiaries is, and since July 25, 2017 has been, in material compliance with all applicable Laws respecting labor, employment, employment practices, and terms and conditions of employment, including worker classification, discrimination, harassment and retaliation, equal employment opportunities, fair employment practices, meal and rest periods, immigration, employee safety and health, payment of wages (including overtime wages), unemployment and workers' compensation, leaves of absence, and hours of work. Except as would not be reasonably likely to result in a material liability to the Company or any of its Subsidiaries, with respect to employees of the Company and its Subsidiaries, each of the Company and its Subsidiaries, since July 25, 2017: (i) has withheld and reported all amounts required by Law or by agreement to be withheld and reported with respect to wages, salaries and other payments, benefits, or compensation to employees, (ii) is not liable for any arrears of wages (including overtime wages), severance pay or any Taxes or any penalty for failure to comply with any of the foregoing, and (iii) is not liable for any payment to any trust or other fund governed by or maintained by or on behalf of any

Governmental Body, with respect to unemployment compensation benefits, disability, social security or other benefits or obligations for employees (other than routine payments to be made in the Ordinary Course of Business). There are no actions, suits, claims, charges, lawsuits, investigations, audits or administrative matters pending or, to the Knowledge of the Company, threatened or reasonably anticipated against the Company or any of its Subsidiaries relating to any employee, applicant for employment, consultant, employment agreement or Company Benefit Plan (other than routine claims for benefits).

(s) Except as would not be reasonably likely to result in a material liability to the Company or any of its Subsidiaries, with respect to each individual who currently renders services to the Company or any of its Subsidiaries, the Company and each of its Subsidiaries has accurately classified each such individual as an employee, independent contractor, or otherwise under all applicable Laws and, for each individual classified as an employee, the Company and each of its Subsidiaries has accurately classified him or her as exempt from or ineligible for overtime under all applicable Laws. Neither the Company nor any of its Subsidiaries has any material liability with respect to any misclassification of: (a) any Person as an independent contractor rather than as an employee, (b) any employee leased from another employer, or (c) any employee currently or formerly classified as exempt from or ineligible for overtime under all applicable Laws.

(t) Within the preceding five years, the Company has not implemented any "plant closing" or "mass layoff" of employees that would reasonably be expected to require notification under the WARN Act or any similar state or local Law, no such "plant closing" or "mass layoff" will be implemented before the Closing Date without advance notification to and approval of Parent, and there has been no "employment loss" as defined by the WARN Act within the ninety (90) days prior to the Closing Date.

(u) There is no Legal Proceeding, claim, unfair labor practice charge or complaint, labor dispute or grievance pending or, to the Knowledge of the Company, threatened against the Company relating to labor, employment, employment practices, or terms and conditions of employment.

2.18 ***Environmental Matters***. The Company and each of its Subsidiaries are and since July 25, 2017 have complied with all applicable Environmental Laws, which compliance includes the possession by the Company of all permits and other Governmental Authorizations required under applicable Environmental Laws and compliance with the terms and conditions thereof, except for any failure to be in such compliance that, either individually or in the aggregate, would not reasonably be expected to be material to the Company or its business. Neither the Company nor any of its Subsidiaries has received since July 25, 2017 (or prior to that time, which is pending and unresolved), any written notice or other communication (in writing or otherwise), whether from a Governmental Body or other Person, that alleges that the Company or any of its Subsidiaries is not in compliance with or has liability pursuant to any Environmental Law and, to the Knowledge of the Company, there are no circumstances that would reasonably be expected to prevent or interfere with the Company's or any of its Subsidiaries' compliance in any material respects with any Environmental Law, except where such failure to comply would not reasonably be expected to be material to the Company or its business. No current or (during the time a prior property was leased or controlled by the Company or any of its Subsidiaries) prior property leased or controlled by the Company or any of its Subsidiaries has had a release of or exposure to Hazardous Materials in material violation of or as would reasonably be expected to result in any material liability of the Company or any of its Subsidiaries pursuant to Environmental Law. No consent, approval or Governmental Authorization of or registration or filing with any Governmental Body is required by Environmental Laws in connection with the execution and delivery of this Agreement or the Contemplated Transactions. Prior to the date hereof, the

Company has provided or otherwise made available to Parent true and correct copies of all material environmental reports, assessments, studies and audits in the possession or control of the Company or any of its Subsidiaries with respect to any property leased or controlled by the Company or any of its Subsidiaries or any business operated by them.

2.19 ***Insurance***. The Company has delivered or made available to Parent accurate and complete copies of all material insurance policies and all material self-insurance programs and arrangements relating to the business, assets, liabilities and operations of the Company and each of its Subsidiaries. Each of such insurance policies is in full force and effect and the Company and each of its Subsidiaries are in compliance in all material respects with the terms thereof. Other than customary end of policy notifications from insurance carriers, since July 25, 2017, neither the Company nor any of its Subsidiaries has received any notice or other communication regarding any actual or possible: (i) cancellation or invalidation of any insurance policy; or (ii) refusal or denial of any coverage, reservation of rights or rejection of any material claim under any insurance policy. The Company and each of its Subsidiaries have provided timely written notice to the appropriate insurance carrier(s) of each Legal Proceeding that is currently pending against the Company or any of its Subsidiaries for which the Company or such Subsidiary has insurance coverage, and no such carrier has issued a denial of coverage or a reservation of rights with respect to any such Legal Proceeding, or informed the Company or any of its Subsidiaries of its intent to do so.

2.20 ***No Financial Advisors***. Except as set forth on *Section 2.20* of the Company Disclosure Schedule, no broker, finder or investment banker is entitled to any brokerage fee, finder's fee, opinion fee, success fee, transaction fee or other fee or commission in connection with the Contemplated Transactions based upon arrangements made by or on behalf of the Company or any of its Subsidiaries.

2.21 ***Disclosure; Company Information***. The information supplied by the Company and each of its Subsidiaries for inclusion in the Registration Statement (including the Company Audited Financial Statements and Company Interim Financial Statements) will not, on the date the Registration Statement is filed with the SEC, at any time it is amended or supplemented, or at the time it becomes effective under the Securities Act, contain any untrue statement of a material fact, or omit to state any material fact required to be stated therein or necessary in order to make the statements therein not false or misleading at the time and in light of the circumstances under which such statement is made. The information supplied by the Company for use in the Proxy Statement relating to the Company and its Subsidiaries (including any Company Financial Statements) will not, on the date the Proxy Statement is first mailed to the Parent's stockholders or at the time of the Parent Stockholders' Meeting, contain any untrue statement of any material fact, or omit to state any material fact required to be stated therein or necessary in order to make the statements therein not false or misleading at the time and in light of the circumstances under which such statement is made. Notwithstanding the foregoing, no representation is made by the Company with respect to the information that has been or will be supplied by Parent and Merger Sub or any of their Representatives for inclusion in the Registration Statement or Proxy Statement.

2.22 ***Transactions with Affiliates***.

(a) *Section 2.22(a)* of the Company Disclosure Schedule describes any material transactions or relationships, since July 25, 2017, between, on one hand, the Company or any of its Subsidiaries and, on the other hand, any (i) officer or director of the Company or, to the Knowledge of the Company, any of its Subsidiaries or any of such officer's or director's immediate family members, (ii) owner of more than 5% of the voting power of the outstanding Company Capital Stock or (iii) to the Knowledge of the Company, any "related person" (within the meaning of Item 404 of Regulation S-K under the Securities Act) of any such officer, director or owner (other than the Company or its Subsidiaries) in the case of

each of (i), (ii) or (iii) that is of the type that would be required to be disclosed under Item 404 of Regulation S-K under the Securities Act.

(b) *Section 2.22(b)* of the Company Disclosure Schedule lists each stockholders agreement, voting agreement, registration rights agreement, co-sale agreement or other similar Contract between the Company and any holders of Company Capital Stock, including any such Contract granting any Person investor rights, rights of first refusal, rights of first offer, registration rights, director designation rights or similar rights (collectively, the "***Investor Agreements***").

2.23 ***Anti-Bribery***. None of the Company or any of its Subsidiaries or any of their respective directors, officers, employees or, to the Company's Knowledge, agents or any other Person acting on their behalf has directly or indirectly made any bribes, rebates, payoffs, influence payments, kickbacks, illegal payments, illegal political contributions, or other payments, in the form of cash, gifts, or otherwise, or taken any other action, in violation of the Foreign Corrupt Practices Act of 1977, the UK Bribery Act of 2010 or any other anti-bribery or anti-corruption Law (collectively, the "***Anti-Bribery Laws***"). Neither the Company nor any of its Subsidiaries is or has been the subject of any investigation or inquiry by any Governmental Body with respect to potential violations of Anti-Bribery Laws.

2.24 ***Disclaimer of Other Representations or Warranties***.

(a) Except as previously set forth in this *Section 2* or in any certificate delivered by the Company to Parent and/or Merger Sub pursuant to this Agreement, the Company makes no representation or warranty, express or implied, at law or in equity, with respect to it or any of its assets, liabilities or operations, and any such other representations or warranties are hereby expressly disclaimed.

(b) The Company acknowledges and agrees that, except for the representations and warranties of Parent and Merger Sub set forth in *Section 3*, the Company is not relying on any other representation or warranty of Parent or any other Person made outside of *Section 3*, including regarding the accuracy or completeness of any such other representations or warranties or the omission of any material information, whether express or implied, in each case, with respect to the Contemplated Transactions.

**Section 3. REPRESENTATIONS AND WARRANTIES OF PARENT AND MERGER SUB**

Subject to *Section 10.12(h)*, except (a) as set forth in the disclosure schedule delivered by Parent to the Company (the "***Parent Disclosure Schedule***") or (b) as disclosed in the Parent SEC Documents filed with the SEC prior to the date hereof and publicly available on the SEC's Electronic Data Gathering Analysis and Retrieval system (but (i) without giving effect to any amendment thereof filed with, or furnished to the SEC on or after the date hereof and (ii) excluding any disclosures contained under the heading "Risk Factors" and any disclosure of risks included in any "forward-looking statements" disclaimer or in any other section to the extent they are forward-looking statements or cautionary, predictive or forward-looking in nature), it being understood that any matter disclosed in Parent SEC Documents (x) shall not be deemed disclosed for the purposes of *Section 3.1*, *3.2*, *3.3*, *3.4*, *3.5* or *3.6*, and (y) shall be deemed to be disclosed in a section of the Parent Disclosure Schedule only to the extent that it is readily apparent from a reading of such Parent SEC Document that it is applicable to such section of the Parent Disclosure Schedule, Parent and Merger Sub represent and warrant to the Company as follows:

3.1 ***Due Organization; No Subsidiaries***.

(a) Each of Parent and Merger Sub is a corporation duly incorporated, validly existing and in good standing under the Laws of the State of Delaware, and has all necessary

corporate power and authority: (i) to conduct its business in the manner in which its business is currently being conducted; (ii) to own or lease and use its property and assets in the manner in which its property and assets are currently owned or leased and used; and (iii) to perform its obligations under all Contracts by which it is bound, except where the failure to have such power or authority would not reasonably be expected to prevent or materially delay the ability of Parent and Merger Sub to consummate the Contemplated Transactions. Since the date of its incorporation, Merger Sub has not engaged in any activities other than activities incident to its formation or in connection with or as contemplated by this Agreement.

(b) Parent is duly licensed and qualified to do business, and is in good standing (to the extent applicable in such jurisdiction), under the Laws of all jurisdictions where the nature of its business requires such licensing or qualification other than in jurisdictions where the failure to be so qualified individually or in the aggregate would not be reasonably expected to have a Parent Material Adverse Effect.

(c) Other than Merger Sub, Parent does not have any Subsidiary. Merger Sub is a corporation duly incorporated, validly existing and in good standing under the Laws of the State of Delaware. Merger Sub was formed solely for the purpose of engaging in the Contemplated Transactions. All of the issued and outstanding capital stock of Merger Sub, which consists of 1,000 shares of Common Stock, $0.0001 par value, is validly issued, fully paid and non-assessable and is owned, beneficially and of record, by Parent, free and clear of any claim, lien, Encumbrance, or agreement with respect thereto. Except for obligations and liabilities incurred in connection with its incorporation and the Contemplated Transactions, Merger Sub has not, and will not have, incurred, directly or indirectly, any obligations or liabilities or engaged in any business activities of any type or kind whatsoever or entered into any agreements or arrangements with any Person.

(d) Parent is not and has not otherwise been, directly or indirectly, a party to, member of or participant in any partnership, joint venture or similar business entity. Parent has not agreed and is not obligated to make, and is not bound by any Contract under which it may become obligated to make, any future investment in or capital contribution to any other Entity. Parent has not, at any time, been a general partner of, and has not otherwise been liable for, any of the debts or other obligations of, any general partnership, limited partnership or other Entity.

3.2 ***Organizational Documents***. Parent has made available to the Company accurate and complete copies of Parent's and Merger Sub's Organizational Documents in effect as of the date of this Agreement. Neither Parent nor Merger Sub is in breach or violation of its respective Organizational Documents.

3.3 ***Authority; Binding Nature of Agreement***.

(a) Each of Parent and Merger Sub has all necessary corporate power and authority to enter into and to perform its obligations under this Agreement and, subject, with respect to Parent, to receipt of the Required Parent Stockholder Vote and, with respect to Merger Sub, the adoption of this Agreement by Parent in its capacity as sole stockholder of Merger Sub, to perform its obligations hereunder and to consummate the Contemplated Transactions. The Parent Board (at meetings duly called and held) has: (i) determined that the Contemplated Transactions are fair to, advisable and in the best interests of Parent and its stockholders; (ii) authorized, approved and declared advisable this Agreement and the Contemplated Transactions, including the issuance of shares of Parent Common Stock to the stockholders of the Company pursuant to the terms of this Agreement and the treatment of the Company Options pursuant to this Agreement; and (iii) determined to recommend, upon the terms and

subject to the conditions set forth in this Agreement, that the stockholders of Parent vote to approve the Parent Stockholder Matters. The Merger Sub Board (by unanimous written consent) has: (A) determined that the Contemplated Transactions are fair to, advisable, and in the best interests of Merger Sub and its sole stockholder; (B) deemed advisable and approved this Agreement and the Contemplated Transactions; and (C) determined to recommend, upon the terms and subject to the conditions set forth in this Agreement, that the stockholder of Merger Sub vote to adopt this Agreement and thereby approve the Contemplated Transactions.

(b) This Agreement has been duly executed and delivered by Parent and Merger Sub and, assuming the due authorization, execution and delivery by the Company, constitutes the legal, valid and binding obligation of Parent and Merger Sub, enforceable against each of Parent and Merger Sub in accordance with its terms, subject to the Enforceability Exceptions.

3.4 ***Vote Required***. (a) The affirmative vote of the holders of a majority of the shares of Parent Common Stock outstanding on the record date for the Parent Stockholders' Meeting and entitled to vote thereon is the only vote of the holders of any class or series of Parent's capital stock necessary to approve the proposal in *Section 5.3(a)(i)* and (b) the affirmative vote of the holders of a majority of the shares of Parent Common Stock present in person or represented by proxy at the Parent Stockholders' Meeting and entitled to vote thereon is the only vote of the holders of any class or series of Parent's capital stock necessary to approve the proposal in *Section 5.3(a)(iii)* (the "***Required Parent Stockholder Vote***").

3.5 ***Non-Contravention; Consents***. Except as set forth on *Section 3.5* of the Parent Disclosure Schedule, subject to obtaining the Required Parent Stockholder Vote and the filing of the Certificate of Merger required by the DGCL, neither (x) the execution, delivery or performance of this Agreement by Parent or Merger Sub, nor (y) the consummation of the Contemplated Transactions, will directly or indirectly (with or without notice or lapse of time):

(a) contravene, conflict with or result in a violation of any of the provisions of the Organizational Documents of Parent or Merger Sub;

(b) contravene, conflict with or result in a material violation of, or, to the Knowledge of Parent, give any Governmental Body or other Person the right to challenge the Contemplated Transactions or to exercise any material remedy or obtain any material relief under, any Law or any order, writ, injunction, judgment or decree to which Parent or Merger Sub, or any of the assets owned or used by Parent or Merger Sub, is subject, except as would not reasonably be expected to be material to Parent or its business;

(c) contravene, conflict with or result in a violation of any of the terms or requirements of, or give any Governmental Body the right to revoke, withdraw, suspend, cancel, terminate or modify, any Governmental Authorization that is held by Parent, except as would not reasonably be expected to be material to Parent or its business;

(d) contravene, conflict with or result in a violation or breach of, or result in a default under, any provision of any Parent Material Contract, or give any Person the right to: (i) declare a default or exercise any remedy under any Parent Material Contract; (ii) any material payment, rebate, chargeback, penalty or change in delivery schedule under any Parent Material Contract; (iii) accelerate the maturity or performance of any Parent Material Contract; or (iv) cancel, terminate or modify any term of any Parent Material Contract, except in the case of any non-material breach, default, penalty or modification; or

(e) result in the imposition or creation of any Encumbrance upon or with respect to any material asset owned or used by Parent (except for Permitted Encumbrances).

Except for (i) any Consent set forth on *Section 3.5* of the Parent Disclosure Schedule under any Parent Contract, (ii) the Required Parent Stockholder Vote, (iii) the filing of the Certificate of Merger with the Secretary of State of the State of Delaware pursuant to the DGCL, and (iv) such consents, waivers, approvals, orders, authorizations, registrations, declarations and filings as may be required under applicable federal and state securities Laws, neither Parent nor Merger Sub is or will be required to make any filing with or give any notice to, or to obtain any Consent from, any Person in connection with (x) the execution, delivery or performance of this Agreement and the Parent Stockholder Support Agreements, or (y) the consummation of the Contemplated Transactions, which if individually or in the aggregate were not given or obtained, would reasonably be expected to prevent or materially delay the ability of Parent and Merger Sub to consummate the Contemplated Transactions. The Parent Board and the Merger Sub Board have taken and will take all actions necessary to ensure that the restrictions applicable to business combinations contained in Section 203 of the DGCL are, and will be, inapplicable to the execution, delivery and performance of this Agreement and to the consummation of the Contemplated Transactions. No Takeover Statute or similar Law applies or purports to apply to the Merger, this Agreement or any of the other Contemplated Transactions.

3.6 ***Capitalization***.

(a) The authorized capital stock of Parent as of the date of this Agreement consists of (i) 100,000,000 shares of Parent Common Stock, par value $0.001 per share, of which 14,872,411 shares have been issued and are outstanding as of the close of business on the Reference Date and (ii) 10,000,000 shares of preferred stock of Parent, par value $0.001 per share, of which no shares have been issued and are outstanding as of the date of this Agreement. Parent does not hold any shares of its capital stock in its treasury.

(b) All of the outstanding shares of Parent Common Stock have been duly authorized and validly issued, and are fully paid and nonassessable. None of the outstanding shares of Parent Common Stock is entitled or subject to any preemptive right, right of participation, right of maintenance or any similar right and none of the outstanding shares of Parent Common Stock is subject to any right of first refusal in favor of Parent. Except as contemplated herein or as otherwise set forth on *Section 3.6(b)* of the Parent Disclosure Schedule, there is no Parent Contract relating to the voting or registration of, or restricting any Person from purchasing, selling, pledging or otherwise disposing of (or granting any option or similar right with respect to), any shares of Parent Common Stock. Parent is not under any obligation, nor is it bound by any Contract pursuant to which it may become obligated, to repurchase, redeem or otherwise acquire any outstanding shares of Parent Common Stock or other securities. There are outstanding Parent Warrants to purchase 1,014,204 shares of Parent Common Stock.

(c) Except for the Parent Stock Plans, and except as set forth on *Section 3.6(c)(i)* of the Parent Disclosure Schedule, Parent does not have any stock option plan or any other plan, program, agreement or arrangement providing for any equity-based compensation for any Person. As of the close of business on the Reference Date, 2,793,973 shares have been reserved for issuance upon exercise of Parent Options granted under the Parent Stock Plans that are outstanding as of the date of this Agreement and 673,062 shares remain available for future issuance pursuant to the Parent Stock Plans. *Section 3.6(c)(ii)* of the Parent Disclosure Schedule sets forth the following information with respect to each Parent Option outstanding as of the date of this Agreement: (i) the name of the holder; (ii) the number of shares of Parent Common Stock subject to such Parent Option at the time of grant; (iii) the number of shares of Parent Common Stock subject to such Parent Option as of the date of this Agreement; (iv) the exercise price of such Parent Option; (v) the date on which such Parent Option was granted; (vi) the applicable vesting schedule, including the number of vested and unvested shares as of the date of this Agreement and any acceleration provisions; (vii) the

date on which such Parent Option expires (and whether there has been any extension of such Parent Option beyond the date(s) provided in the form of stock option agreement provided to the Company); and (viii) whether such Parent Option is intended to constitute an "incentive stock option" (as defined in the Code) or a non-qualified stock option.

(d) Except for the Parent Warrants, the Parent Stock Plans, including the Parent Options, and as otherwise set forth on *Section 3.6(d)* of the Parent Disclosure Schedule, there is no: (i) outstanding subscription, option, call, warrant or right (whether or not currently exercisable) to acquire any shares of the capital stock or other securities of Parent or any of its Subsidiaries; (ii) outstanding security, instrument or obligation that is or may become convertible into or exchangeable for any shares of the capital stock or other securities of Parent or any of its Subsidiaries; (iii) condition or circumstance that is reasonably likely to give rise to or provide a basis for the assertion of a claim by any Person to the effect that such Person is entitled to acquire or receive any shares of capital stock or other securities of Parent or any of its Subsidiaries; or (iv) outstanding or authorized stock appreciation, phantom stock, profit participation or other similar rights with respect to Parent or any of its Subsidiaries.

(e) All outstanding shares of Parent Common Stock, Parent Options, Parent Warrants and other securities of Parent have been issued and granted in material compliance with (i) all applicable securities Laws and other applicable Law, and (ii) all requirements set forth in applicable Contracts.

3.7 ***SEC Filings; Financial Statements***.

(a) Parent has delivered or made available to the Company accurate and complete copies of all registration statements, proxy statements, Certifications (as defined below) and other statements, reports, schedules, forms and other documents filed by Parent with the SEC since January 1, 2017 (the "***Parent SEC Documents***"), except for documents that have been filed electronically on the SEC's Electronic Data Gathering, Analysis, and Retrieval System ("***EDGAR***") and can be obtained on the SEC's website at www.sec.gov. All statements, reports, schedules, forms and other documents required to have been filed by Parent or its officers with the SEC have been so filed on a timely basis. As of the time it was filed with the SEC (or, if amended or superseded by a filing prior to the date of this Agreement, then on the date of such filing), each of the Parent SEC Documents complied in all material respects with the applicable requirements of the Securities Act or the Exchange Act (as the case may be), including in each case, the rules and regulations promulgated thereunder, and, as of the time they were filed, or if amended or superseded by a filing prior to the date of this Agreement, on the date of the last such amendment or superseding filing prior to the date of this Agreement, none of the Parent SEC Documents contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The certifications and statements required by (i) Rule 13a-14 under the Exchange Act and (ii) 18 U.S.C. §1350 (Section 906 of the Sarbanes-Oxley Act) relating to any Parent SEC Documents (collectively, the "***Certifications***") are accurate and complete and comply as to form and content with all applicable Laws, except as set forth on *Section 3.7(a)* of the Parent Disclosure Schedule. As used in this *Section 3.7(a)*, the term "file" and variations thereof shall be broadly construed to include any manner in which a document or information is filed, furnished, supplied or otherwise made available to the SEC.

(b) The financial statements (including any related notes) contained or incorporated by reference in the Parent SEC Documents: (i) complied as to form in all material respects with the published rules and regulations of the SEC applicable thereto; (ii) were prepared in accordance with GAAP (except as may be indicated in the notes to such financial statements

or, in the case of unaudited financial statements, except as permitted by Form 10-Q of the SEC, and except that the unaudited financial statements may not contain footnotes and are subject to normal and recurring year-end adjustments that are not reasonably expected to be material in amount) applied on a consistent basis unless otherwise noted therein throughout the periods indicated; and (iii) fairly present, in all material respects, the financial position of Parent as of the respective dates thereof and the results of operations and cash flows of Parent for the periods covered thereby. Other than as expressly disclosed in the Parent SEC Documents filed prior to the date hereof, there has been no material change in Parent's accounting methods or principles that would be required to be disclosed in Parent's financial statements in accordance with GAAP.

(c) Parent's auditor has at all times since its first date of service to Parent been: (i) a registered public accounting firm (as defined in Section 2(a)(12) of the Sarbanes-Oxley Act); (ii) to the Knowledge of Parent, "independent" with respect to Parent within the meaning of Regulation S-X under the Exchange Act; and (iii) to the Knowledge of Parent, in compliance with subsections (g) through (l) of Section 10A of the Exchange Act and the rules and regulations promulgated by the SEC and the Public Company Accounting Oversight Board thereunder.

(d) Except as set forth in *Section 3.7(d)* of the Parent Disclosure Schedule, since January 1, 2017 through the date of this Agreement, Parent has not received any comment letter from the SEC or the staff thereof or any correspondence from officials of Nasdaq or the staff thereof relating to the delisting or maintenance of listing of the Parent Common Stock on Nasdaq. As of the date of this Agreement, Parent has timely responded to all comment letters of the staff of the SEC relating to the Parent SEC Documents, and the SEC has not advised Parent that any final responses are inadequate, insufficient or otherwise non-responsive. Parent has made available to the Company true, correct and complete copies or all comment letters, written inquiries and enforcement correspondences between the SEC, on the one hand, and Parent, on the other hand, occurring since January 1, 2017 and will, reasonably promptly following the receipt thereof, make available to the Company any such correspondence sent or received after the date of this Agreement. To the Knowledge of Parent, as of the date of this Agreement, none of the Parent SEC Documents is the subject of ongoing SEC report or outstanding SEC comment.

(e) Neither Parent nor, to the Knowledge of Parent, any director, officer, employee, or internal or external auditor of Parent has received or otherwise had or obtained actual Knowledge of any substantive material complaint, allegation, assertion or claim, whether written or oral, that Parent has engaged in questionable accounting or auditing practices. Since January 1, 2017, there have been no formal investigations regarding financial reporting or accounting policies and practices discussed with, reviewed by or initiated at the direction of the chief executive officer, chief financial officer, principal accounting officer or general counsel of Parent, the Parent Board or any committee thereof, other than ordinary course audits or reviews of accounting policies and practices or internal controls required by the Sarbanes-Oxley Act.

(f) Except as set forth in *Section 3.7(f)* of the Parent Disclosure Schedule, Parent is in compliance in all material respects with (i) the applicable current listing and governance rules and regulations of Nasdaq and (ii) the applicable provisions of the Sarbanes-Oxley Act. Parent has delivered or made available to the Company correct and complete copies of all material correspondences between Nasdaq and Parent since January 1, 2017.

(g) Parent maintains a system of internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) of the Exchange Act) that is sufficient to provide reasonable

assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP and to provide reasonable assurance (i) that Parent maintains records that in reasonable detail accurately and fairly reflect Parent's transactions and dispositions of the assets of Parent and Merger Sub, (ii) that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, (iii) that receipts and expenditures are made only in accordance with authorizations of management and the Parent Board and (iv) regarding prevention or timely detection of the unauthorized acquisition, use or disposition of Parent's assets that could have a material effect on Parent's financial statements. Parent has evaluated the effectiveness of Parent's internal control over financial reporting as of December 31, 2018, and, to the extent required by applicable Law, presented in any applicable Parent SEC Document that is a report on Form 10-K or Form 10-Q (or any amendment thereto) its conclusions about the effectiveness of the internal control over financial reporting as of the end of the period covered by such report or amendment based on such evaluation. Parent has disclosed, based on its most recent evaluation of internal control over financial reporting, to Parent's auditors and audit committee (and made available to the Company a summary of the significant aspects of such disclosure) (A) all significant deficiencies and material weaknesses, if any, in the design or operation of internal control over financial reporting that are reasonably likely to adversely affect Parent's ability to record, process, summarize and report financial information and (B) any known fraud that involves management or other employees who have a significant role in Parent's internal control over financial reporting. Parent has not identified, based on its most recent evaluation of internal controls over financial reporting, any material weaknesses in the design or operation of Parent's internal control over financial reporting.

(h) Parent maintains "disclosure controls and procedures" (as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act) that are reasonably designed to ensure that (i) all information required to be disclosed by Parent in the periodic reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods required by the SEC, and (ii) all such information is accumulated and communicated to Parent's management as appropriate to allow timely decisions regarding required disclosure and to make the Certifications.

3.8 ***Absence of Changes***. Except as set forth on *Section 3.8* of the Parent Disclosure Schedule, between the date of the Parent Balance Sheet and the date of this Agreement, Parent and its Subsidiaries have conducted its business only in the Ordinary Course of Business (except for the execution and performance of this Agreement and the discussions, negotiations and transactions related thereto) and there has not been any (a) Parent Material Adverse Effect or (b) action, event or occurrence that would have required the consent of the Company pursuant to *Section 4.1(b)* had such action, event or occurrence taken place after the execution and delivery of this Agreement.

3.9 ***Absence of Undisclosed Liabilities***. As of the date hereof, Parent does not have any Liability, individually or in the aggregate, of a type required to be recorded or reflected on a balance sheet or disclosed in the footnotes thereto under GAAP except for: (a) Liabilities disclosed, reflected or reserved against in the Parent Balance Sheet; (b) Liabilities that have been incurred by Parent since the date of the Parent Balance Sheet in the Ordinary Course of Business, and which are not in excess of $100,000 in the aggregate; (c) Liabilities for performance of obligations of Parent under Parent Contracts (other than for breach thereof); (d) Liabilities incurred in connection with the Contemplated Transactions; and (e) Liabilities described in *Section 3.9* of the Parent Disclosure Schedule.

3.10 ***Title to Assets***. Parent owns, and has good and valid title to, or, in the case of leased properties and assets, valid leasehold interests in, all tangible properties or tangible assets and equipment used or held for use in its business or operations or purported to be owned by it that are material to Parent or its business, including: (a) all tangible assets reflected on the Parent Balance Sheet; and (b) all other tangible assets reflected in the books and records of Parent as being owned by Parent. All of such assets are owned or, in the case of leased assets, leased by Parent free and clear of any Encumbrances, other than Permitted Encumbrances.

3.11 ***Real Property; Leasehold***. Parent does not own any real property. Parent has made available to the Company (a) an accurate and complete list of all real properties with respect to which Parent directly or indirectly holds a valid leasehold interest as well as any other real estate that is in the possession of or occupied or leased by Parent, and (b) copies of all leases under which any such real property is possessed, occupied or leased (the "***Parent Real Estate Leases***"), each of which is in full force and effect, with no existing material default thereunder. Parent's possession, occupancy, lease use and operation of each such leased property conforms to all applicable Laws in all material respects, and Parent has exclusive possession of each such leased property and leasehold interest and has not granted any occupancy rights to tenants or licensees with respect to such leased property. In addition, each such leased property is free and clear of all Encumbrances other than Permitted Encumbrances. Parent has not received any written notice of existing, pending or threatened condemnation proceedings affecting such leased property or existing, pending or threatened zoning, building code or other moratorium proceedings, or similar matters which could reasonably be expected to adversely affect the ability to operate on the leased property as currently operated.

3.12 ***Intellectual Property***.

(a) *Section 3.12(a)* of the Parent Disclosure Schedule identifies each item of Registered IP owned in whole or in part by, or exclusively licensed to, Parent (collectively, the "***Parent Registered IP***"), including, with respect to each registration and application: (i) the name of the applicant/registrant, (ii) the jurisdiction of application/registration, (iii) the application or registration number and (iv) any other co-owners. To the Knowledge of Parent, each of the patents and patent applications included in the Parent Registered IP properly identifies by name each and every inventor of the inventions claimed therein as determined in accordance with applicable Laws of the United States. As of the date of this Agreement, no cancellation, interference, opposition, reissue, reexamination or other proceeding of any nature (other than office actions or similar communications issued by any Governmental Body in the ordinary course of prosecution of any pending applications for registration) is pending, threatened in writing, or, to the Knowledge of Parent, threatened, in which the scope, validity, enforceability or ownership of any Parent Registered IP is being or has been contested or challenged.

(b) Except as has not had and would not reasonably be expected to have, individually or in the aggregate, a Parent Material Adverse Effect, Parent owns all right, title and interest in and to all Parent IP (other than as disclosed on *Section 3.12(b)* of the Parent Disclosure Schedule), free and clear of all Encumbrances other than Permitted Encumbrances. To the Knowledge of Parent, each Parent Associate involved in the creation or development of any Parent IP, pursuant to such Parent Associate's activities on behalf of Parent, has signed a written agreement containing an assignment of such Parent Associate's rights in such Parent IP to Parent and confidentiality provisions protecting the Parent IP.

(c) To the Knowledge of Parent, no funding, facilities or personnel of any Governmental Body or any university, college, research institute or other educational institution has been used to create Parent IP, except for any such funding or use of facilities or personnel that does not result in such Governmental Body or institution obtaining ownership rights to such Parent IP or the right to receive royalties for the practice of such Parent IP.

(d) *Section 3.12(d)* of Parent Disclosure Schedule sets forth each agreement pursuant to which Parent (i) is granted a license (including a covenant not to sue) under, or other right or interest in any Intellectual Property Right owned by any third party (each a "***Parent In-bound License***") or (ii) grants to any third party a license (including a covenant not to sue) under, or any other right or interest in any Parent IP or material Intellectual Property Right licensed to Parent under a Parent In-bound License (each a "***Parent Out-bound License***") (provided, that, Parent In-bound Licenses shall not include, when entered into in the Ordinary Course of Business, material transfer agreements, services agreements, clinical trial agreements, licenses ancillary to the purchase of reagents or other materials, non-disclosure agreements, commercially available Software-as-a-Service offerings or off-the-shelf software licenses; and Parent Out-bound Licenses shall not include, when entered into in the Ordinary Course of Business, material transfer agreements, clinical trial agreements and services agreements that grant non-exclusive licenses solely for the purpose of conducting activities for Parent, non-disclosure agreements).

(e) To the Knowledge of Parent: (i) the operation of the business of Parent as currently conducted does not infringe, misappropriate or otherwise violate any valid and enforceable Registered IP or any other Intellectual Property Right owned by any other Person and (ii) no other Person is infringing, misappropriating or otherwise violating any Parent IP or any Intellectual Property Rights exclusively licensed to Parent. As of the date of this Agreement, no Legal Proceeding is pending or threatened in writing (or, to the Knowledge of Parent, is threatened) (A) against Parent alleging that the operation of the business of Parent infringes or constitutes the misappropriation or other violation of any Intellectual Property Rights of another Person or (B) by Parent alleging that another Person has infringed, misappropriated or otherwise violated any of Parent IP or any Intellectual Property Rights exclusively licensed to Parent. Since January 1, 2017, Parent has not received any written notice or other written communication alleging that the operation of the business of Parent infringes or constitutes the misappropriation or other violation of any Intellectual Property Right of another Person.

(f) None of Parent IP or, to the Knowledge of Parent, any Intellectual Property Rights exclusively licensed to Parent is subject to any pending or outstanding injunction, directive, order, judgment or other disposition of dispute that restricts the use, transfer, registration or licensing by Parent of any such Parent IP or Intellectual Property Rights exclusively licensed to Parent.

(g) To the Knowledge of Parent, the operation of Parent's business are in material compliance with all Laws pertaining to data privacy and data security of Sensitive Data. To the Knowledge of Parent, since January 1, 2017, there have been (i) no losses or thefts of data or security breaches relating to Sensitive Data used in the business of Parent, (ii) no violations of any security policy of Parent regarding any such Sensitive Data used in the business of Parent, (iii) no unauthorized access, unauthorized use or unintended or improper disclosure of any Sensitive Data used in the business of Parent. Parent has, and to its Knowledge, each of its service providers that has access to Sensitive Data in connection with conducting services for Parent has, taken reasonable actions and implemented policies and procedures that are reasonably appropriate to protect and maintain the security of all Sensitive Data.

3.13 ***Agreements, Contracts and Commitments***. *Section 3.13* of the Parent Disclosure Schedule lists the following Parent Contract in effect as of the date of this Agreement other than any Parent Benefit Plan (each, a "***Parent Material Contract***" and collectively, the "***Parent Material Contracts***"):

(a) a material contract as defined in Item 601(b)(10) of Regulation S-K as promulgated under the Securities Act;

(b) each Contract relating to any agreement of indemnification or guaranty not entered into in the Ordinary Course of Business;

(c) each Contract containing (i) any covenant limiting the freedom of Parent to engage in any line of business or compete with any Person, (ii) any most-favored pricing arrangement or similar term by which any Person is or could become entitled to any benefit, right or privilege that must be at least as favorable to such Person as those offered to another Person, (iii) any exclusivity provision, right of first refusal or right of first negotiation or similar covenant, or (iv) any non-solicitation provision, in each case, other than restrictions or limitations that do not or would not materially affect the ability of Parent to conduct its business;

(d) each Contract relating to capital expenditures and requiring payments after the date of this Agreement in excess of $100,000 pursuant to its express terms and not cancelable without penalty;

(e) each Contract relating to the disposition or acquisition of material assets outside of the Ordinary Course of Business and requiring payments after the date of this Agreement in excess of $100,000 or any ownership interest in any Entity;

(f) each Contract relating to any mortgages, indentures, loans, notes or credit agreements, security agreements or other agreements or instruments relating to the borrowing of money or extension of credit (whether as debtor or creditor) or creating any material Encumbrances with respect to any assets of Parent or any advancement or loan of money or equipment or other debt obligations to any employee or independent contractor, other than advancement of expenses in the Ordinary Course of Business;

(g) each Contract requiring payment by or to Parent after the date of this Agreement in excess of $100,000 pursuant to its express terms relating to: (i) any distribution agreement (identifying any that contain exclusivity provisions); (ii) any agreement involving provision of services or products with respect to any pre-clinical or clinical development activities of Parent; (iii) any dealer, distributor, joint marketing, alliance, joint venture, cooperation, development or other agreement currently in force under which Parent has continuing obligations to develop or market any product, technology or service, or any agreement pursuant to which Parent has continuing obligations to develop any Intellectual Property Rights that will not be owned, in whole or in part, by Parent; or (iv) any Contract to license or engage any third party to manufacture or produce any product, drug substance, service or technology of Parent, any Contract for raw materials or warehousing of products or any Contract to sell, distribute or commercialize any products or service of Parent;

(h) each Contract with any Person, including any financial advisor, broker, finder, investment banker or other Person, providing advisory services to Parent in connection with the Contemplated Transactions;

(i) each Parent Real Estate Lease;

(j) each Contract with any Governmental Body;

(k) each Parent Out-bound License and Parent In-bound License;

(l) each Contract containing any royalty, dividend or similar arrangement based on the revenues or profits of Parent, or obligation to pay any royalties, fees or other payments to any owner, licensor or other claimant to any Intellectual Property Rights;

(m) each Parent Contract, offer letter, employment agreement, or independent contractor agreement with any employee or service provider (other than documents that can be obtained

on the SEC's website at www.sec.gov) that (i) is not immediately terminable at will by Parent without notice, severance, or other cost or liability, or (ii) provides for retention payments, change of control payments, severance, accelerated vesting, an exercise period of more than three months following a termination of service or any payment or benefit that may or will become due as a result of the Merger; or

(n) any other Contract that is not terminable at will (with no penalty or payment) by Parent, and (i) which involves payment or receipt by Parent after the date of this Agreement under any such agreement, contract or commitment of more than $100,000 in the aggregate, or obligations after the date of this Agreement in excess of $100,000 in the aggregate, or (ii) that is material to the business or operations of Parent.

Parent has delivered or made available to the Company accurate and complete copies of all Parent Material Contracts, including all amendments thereto. There are no Parent Material Contracts that are not in written form. Parent has not, nor to Parent's Knowledge, as of the date of this Agreement, has any other party to a Parent Material Contract, breached, violated or defaulted under, or received notice that it breached, violated or defaulted under, any of the terms or conditions of any Parent Material Contract. As to Parent, as of the date of this Agreement, each Parent Material Contract is valid, binding, enforceable and in full force and effect, subject to the Enforceability Exceptions. As of the date of this Agreement, no Person is renegotiating, or has a right pursuant to the terms of any Parent Material Contract to change, any material amount paid or payable to Parent under any Parent Material Contract or any other material term or provision of any Parent Material Contract, and no Person has indicated in writing to Parent that it desires to renegotiate, modify, not renew or cancel any Parent Material Contract.

3.14 ***Compliance; Permits***.

(a) Parent is, and since January 1, 2016 has been, in compliance in all material respects with all applicable Laws, including the FDCA, the FDA regulations adopted thereunder and any other similar Law administered or promulgated by the FDA or other Drug Regulatory Agency, except for any noncompliance, either individually or in the aggregate, which would not be material to Parent. No investigation, claim, suit, proceeding, audit or other action by any Governmental Body is pending or, to the Knowledge of Parent, threatened in writing against Parent. There is no agreement, judgment, injunction, order or decree binding upon Parent which (i) has or would reasonably be expected to have the effect of prohibiting or materially impairing any business practice of Parent, any acquisition of material property by Parent or the conduct of business by Parent as currently conducted, (ii) would be reasonably likely to have an adverse effect on Parent's ability to comply with or perform any covenant or obligation under this Agreement, or (iii) would be reasonably likely to have the effect of preventing, delaying, making illegal or otherwise interfering with the Contemplated Transactions.

(b) Parent holds all required Governmental Authorizations which are material to the operation of the business of Parent as currently conducted (the "***Parent Permits***"). *Section 3.14(b)* of the Parent Disclosure Schedule identifies each Parent Permit. Parent is in compliance with the terms of the Parent Permits. No Legal Proceeding is pending or, to the Knowledge of Parent, threatened, which seeks to revoke, limit, suspend, or materially modify any Parent Permit.

(c) There are no proceedings pending or, to the Knowledge of Parent, threatened with respect to an alleged violation by Parent of the FDCA, FDA regulations adopted thereunder or any other similar Law administered or promulgated by any Drug Regulatory Agency.

(d) All clinical, pre-clinical and other studies and tests conducted by or on behalf of, or sponsored by, Parent, or in which Parent or its respective current products or product candidates have participated, were and, if still pending, are being conducted in all material respects in accordance with standard medical and scientific research procedures and in compliance in all material respects with the applicable regulations of any applicable Drug Regulatory Agency and other applicable Law, including 21 C.F.R. Parts 50, 54, 56, 58 and 312. No preclinical or clinical trial conducted by or on behalf of Parent has been terminated or suspended prior to completion for safety or non-compliance reasons. Since January 1, 2016, Parent has not received any notices, correspondence, or other communications from any Drug Regulatory Agency requiring or threatening to initiate the termination or suspension of any clinical studies conducted by or on behalf of, or sponsored by, Parent or in which Parent or its current products or product candidates have participated.

(e) Parent is not the subject of any pending or, to the Knowledge of Parent, threatened investigation in respect of its businesses or products by the FDA pursuant to its "Fraud, Untrue Statements of Material Facts, Bribery, and Illegal Gratuities" Final Policy set forth in 56 Fed. Reg. 46191 (September 10, 1991) and any amendments thereto. To the Knowledge of Parent, Parent has not committed any acts, made any statement, or has not failed to make any statement, in each case in respect of its business or products that would violate the FDA's "Fraud, Untrue Statements of Material Facts, Bribery, and Illegal Gratuities" Final Policy, and any amendments thereto. Neither Parent nor any of its officers, employees or, to the Knowledge of the Company, agents has been convicted of any crime or engaged in any conduct that could result in a debarment or exclusion (i) under 21 U.S.C. Section 335a or (ii) any similar applicable Law. No debarment or exclusionary claims, actions, proceedings or investigations in respect of their business or products are pending or, to the Knowledge of Parent, threatened against Parent, or any of its officers, employees or, to the Knowledge of Parent, agents.

(f) Parent has complied with all Laws relating to patient, medical or individual health information, including HIPAA, including the standards for the privacy of Individually Identifiable Health Information at 45 C.F.R. Parts 160 and 164, Subparts A and E, the standards for the protection of Electronic Protected Health Information set forth at 45 C.F.R. Part 160 and 45 C.F.R. Part 164, Subpart A and Subpart C, the standards for transactions and code sets used in electronic transactions at 45 C.F.R. Part 160, Subpart A and Part 162, and the standards for Breach Notification for Unsecured Protected Health Information at 45 C.F.R. Part 164, Subpart D, all as amended from time to time. Parent has entered into, where required, and is in compliance in all material respects with the terms of all Business Associate Agreements to which Parent is a party or otherwise bound. Parent has created and maintained written policies and procedures to protect the privacy of all protected health information, provide training to all employees and agents as required under HIPAA, and has implemented security procedures, including physical, technical and administrative safeguards, to protect all personal information and Protected Health Information stored or transmitted in electronic form. Parent has not received written notice from the Office for Civil Rights for the U.S. Department of Health and Human Services or any other Governmental Body of any allegation regarding its failure to comply with HIPAA or any other state law or regulation applicable to the protection of individually identifiable health information or personally identifiable information. No successful Security Incident, Breach of Unsecured Protected Health Information or breach of personally identifiable information under applicable state or federal laws have occurred with respect to information maintained or transmitted to Parent or an agent or third party subject to a Business Associate Agreement with Parent. Parent is currently submitting, receiving and handling or is capable of submitting receiving and handling transactions in accordance with the Standard Transaction Rule. All capitalized terms in this

*Section 3.14(f)* not otherwise defined in this Agreement shall have the meanings set forth under HIPAA.

3.15 ***Legal Proceedings; Orders***.

(a) Except as set forth in *Section 3.15(a)* of the Parent Disclosure Schedule, as of the date of this Agreement, there is no material pending Legal Proceeding and, to the Knowledge of Parent, no Person has threatened in writing to commence any Legal Proceeding: (i) that involves (A) Parent, (B) any Parent Associate (in his or her capacity as such) or (C) any of the material assets owned or used by Parent; or (ii) that challenges, or that would have the effect of preventing, delaying, making illegal or otherwise interfering with, the Contemplated Transactions.

(b) Except as set forth in *Section 3.15(b)* of the Parent Disclosure Schedule, since January 1, 2016 through the date of this Agreement, no Legal Proceeding has been pending against Parent that resulted in material liability to Parent.

(c) There is no order, writ, injunction, judgment or decree to which Parent, or any of the material assets owned or used by Parent, is subject. To the Knowledge of Parent, no officer or employee of Parent is subject to any order, writ, injunction, judgment or decree that prohibits such officer or employee from engaging in or continuing any conduct, activity or practice relating to the business of Parent or to any material assets owned or used by Parent.

3.16 ***Tax Matters***.

(a) Parent and Merger Sub have timely filed all income Tax Returns and other material Tax Returns, other than Tax Returns subject to a valid extension granted in the ordinary course of business, that they were required to file under applicable Law. All such Tax Returns are correct and complete in all material respects and have been prepared in compliance with all applicable Law. No claim has ever been made by any Governmental Body in any jurisdiction where Parent or Merger Sub does not file a particular Tax Return or pay a particular Tax that Parent or Merger Sub is subject to taxation by that jurisdiction.

(b) All income and other material Taxes due and owing by Parent or Merger Sub on or before the date hereof (whether or not shown on any Tax Return) have been fully paid. The unpaid Taxes of Parent Merger Sub did not, as of the date of the Parent Balance Sheet, materially exceed the reserve for Tax liability (excluding any reserve for deferred Taxes established to reflect timing differences between book and Tax items) set forth on the face of the Parent Balance Sheet. Since the Parent Balance Sheet Date, neither Parent nor Merger Sub has incurred any material Liability for Taxes outside the Ordinary Course of Business.

(c) All Taxes that Parent or Merger Sub are or was required by Law to withhold or collect have been duly and timely withheld or collected in all material respects on behalf of its respective employees, independent contractors, stockholders, lenders, customers or other third parties and, have been timely paid to the proper Governmental Body or other Person or properly set aside in accounts for this purpose.

(d) There are no Encumbrances for material Taxes (other than Permitted Encumbrances) upon any of the assets of Parent or Merger Sub.

(e) No deficiencies for income or other material Taxes with respect to Parent or Merger Sub have been claimed, proposed or assessed by any Governmental Body in writing. There are no pending or ongoing, and to the Knowledge of Parent, threatened audits, assessments or other actions for or relating to any liability in respect of a material amount of Taxes of Parent or Merger Sub. Neither Parent nor Merger Sub (or any of their predecessors) has waived any

statute of limitations in respect of any income or other material Taxes or agreed to any extension of time with respect to any income or other material Tax assessment or deficiency.

(f) Parent has not been a United States real property holding corporation within the meaning of Section 897(c)(2) of the Code during the applicable period specified in Section 897(c)(1)(A)(ii) of the Code.

(g) Neither Parent nor Merger Sub is a party to any Tax allocation agreement, Tax sharing agreement, Tax indemnity agreement, or similar agreement or arrangement, other than customary commercial contracts entered into in the Ordinary Course of Business the principal subject matter of which is not Taxes.

(h) Neither Parent nor Merger Sub will be required to include any material item of income in, or exclude any material item of deduction from, taxable income for any Tax period (or portion thereof) ending after the Closing Date as a result of any: (i) change in method of accounting for Tax purposes; (ii) use of an improper method of accounting for a Tax period ending on or prior to the Closing Date; (iii) "closing agreement" as described in Section 7121 of the Code (or any similar provision of state, local or foreign Law) executed on or prior to the Closing Date; (iv) intercompany transaction or excess loss account described in Treasury Regulations under Section 1502 of the Code (or any similar provision of state, local or foreign Law); (v) installment sale or open transaction disposition made on or prior to the Closing Date; (vi) prepaid amount received or deferred revenue accrued on or prior to the Closing Date; or (vii) election under Section 108(i) of the Code (or any similar provision of state, local or foreign Law). Parent has not made any election under Section 965(h) of the Code.

(i) Neither Parent nor Merger Sub has ever been (i) a member of a consolidated, combined or unitary Tax group (other than such a group the common parent of which is Parent) or (ii) a party to any joint venture, partnership, or other arrangement that is treated as a partnership for U.S. federal income Tax purposes. Neither Parent nor Merger Sub has any Liability for any material Taxes of any Person (other than Parent and Merger Sub) under Treasury Regulations Section 1.1502-6 (or any similar provision of state, local, or foreign Law), or as a transferee or successor.

(j) Neither Parent nor Merger Sub has, since January 1, 2017, distributed stock of another Person, or had its stock distributed by another Person, in a transaction that was purported or intended to be governed in whole or in part by Section 355 of the Code or Section 361 of the Code (or any similar provisions of state, local or foreign Law).

(k) Neither Parent nor Merger Sub (i) is a "controlled foreign corporation" as defined in Section 957 of the Code; (ii) is a "passive foreign investment company" within the meaning of Section 1297 of the Code; or (iii) has ever had a permanent establishment (within the meaning of an applicable Tax treaty) or otherwise had an office or fixed place of business in a country other than the country in which it is organized.

(l) Neither Parent nor Merger Sub has participated in or been a party to a transaction that, as of the date of this Agreement, constitutes a "listed transaction" that is required to be reported to the IRS pursuant to Section 6011 of the Code and applicable Treasury Regulations thereunder.

For purposes of this *Section 3.16*, each reference to Parent or any of its Subsidiaries shall be deemed to include any Person that was liquidated into, merged with, or is otherwise a predecessor to, Parent.

3.17 ***Employee and Labor Matters; Benefit Plans***.

(a) *Section 3.17(a)* of the Parent Disclosure Schedule is a list of all material Parent Benefit Plans, including, without limitation, each Parent Benefit Plan that provides for retirement, change in control, stay or retention deferred compensation, incentive compensation, severance or retiree medical or life insurance benefits. "***Parent Benefit Plan***" means each (i) "employee benefit plan" as defined in Section 3(3) of ERISA and (ii) other pension, retirement, deferred compensation, excess benefit, profit sharing, bonus, incentive, equity or equity-based, phantom equity, employment (other than at-will employment offer letters on Parent's standard form, other than individual Parent Options or other compensatory equity award agreements made pursuant to Parent's standard forms, in which case only representative standard forms of such agreements shall be scheduled and other than consulting agreements that may be terminated with 30 days or less days of notice), consulting, severance, change-of-control, retention, health, life, disability, group insurance, paid-time off, holiday, welfare and fringe benefit plan, program, agreement, contract, or arrangement (whether written or unwritten, qualified or nonqualified, funded or unfunded and including any that have been frozen), in any case, maintained, contributed to, or required to be contributed to, by Parent or Parent ERISA Affiliates for the benefit of any current or former employee, director, officer or independent contractor of Parent or under which Parent has any actual or contingent liability (including, without limitation, as to the result of it being treated as a single employer under Code Section 414 with any other person).

(b) As applicable with respect to each material Parent Benefit Plan, Parent has made available to the Company, true and complete copies of (i) each material Parent Benefit Plan, including all amendments thereto, and in the case of an unwritten material Parent Benefit Plan, a written description thereof, (ii) all current trust documents, investment management contracts, custodial agreements, administrative services agreements and insurance and annuity contracts relating thereto, (iii) the current summary plan description and each summary of material modifications thereto, (iv) the most recently filed annual reports with any Governmental Body (*e.g.*, Form 5500 and all schedules thereto), (v) the most recent IRS determination, opinion or advisory letter, (vi) the most recent summary annual reports, nondiscrimination testing reports, actuarial reports, financial statements and trustee reports, (vii) all records, notices and filings concerning IRS or Department of Labor or other Governmental Body audits or investigations, "prohibited transactions" within the meaning of Section 406 of ERISA or Section 4975 of the Code and (viii) all policies and procedures established to comply with the privacy and security rules of HIPAA.

(c) Each Parent Benefit Plan has been maintained, operated and administered in compliance in all material respects with its terms and any related documents or agreements and the applicable provisions of ERISA, the Code and all other Laws.

(d) The Parent Benefit Plans which are "employee pension benefit plans" within the meaning of Section 3(2) of ERISA and which are intended to meet the qualification requirements of Section 401(a) of the Code have received determination or opinion letters from the IRS on which they may currently rely to the effect that such plans are qualified under Section 401(a) of the Code and the related trusts are exempt from federal income Taxes under Section 501(a) of the Code, respectively, and to the Knowledge of Parent nothing has occurred that would reasonably be expected to materially adversely affect the qualification of such Parent Benefit Plan or the tax exempt status of the related trust.

(e) Neither Parent nor any Parent ERISA Affiliate maintains, contributes to, is required to contribute to, or has any actual or contingent liability with respect to, (i) any "employee pension benefit plan" (within the meaning of Section 3(2) of ERISA) that is subject to

Title IV or Section 302 of ERISA or Section 412 of the Code, (ii) any "multiemployer plan" (within the meaning of Section 3(37) of ERISA), (iii) any "multiple employer plan" (within the meaning of Section 413 of the Code) or (iv) any "multiple employer welfare arrangement" (within the meaning of Section 3(40) of ERISA).

(f) There are no pending audits or investigations by any Governmental Body involving any Parent Benefit Plan, and no pending or, to the Knowledge of Parent, threatened claims (except for individual claims for benefits payable in the normal operation of the Parent Benefit Plans), suits or proceedings involving any Parent Benefit Plan, any fiduciary thereof or service provider thereto, in any case except as would not be reasonably expected to result in material liability to Parent. All contributions and premium payments required to have been made under any of the Parent Benefit Plans or by applicable Law (without regard to any waivers granted under Section 412 of the Code), have been timely made in all material respects and neither Parent nor any Parent ERISA Affiliate has any material liability for any unpaid contributions with respect to any Parent Benefit Plan.

(g) Neither Parent nor any Parent ERISA Affiliates, nor to the Knowledge of Parent, any fiduciary, trustee or administrator of any Parent Benefit Plan, has engaged in, or in connection with the Contemplated Transactions will engage in, any transaction with respect to any Parent Benefit Plan which would subject any such Parent Benefit Plan, Parent or Parent ERISA Affiliates to a material Tax, material penalty or material liability for a "prohibited transaction" under Section 406 of ERISA or Section 4975 of the Code.

(h) No Parent Benefit Plan provides death, medical, dental, vision, life insurance or other welfare benefits beyond termination of service or retirement other than coverage mandated by Law and neither Parent nor any Parent ERISA Affiliates has made a written or oral representation promising the same.

(i) Except as set forth in *Section 3.17(i)* of the Parent Disclosure Schedule, neither the execution of this Agreement, nor the consummation of the Contemplated Transactions (either alone or when combined with the occurrence of any other event, including without limitation, a termination of employment) will: (i) result in any payment becoming due to any current or former employee, director, officer, or independent contractor of Parent, (ii) increase any amount of compensation or benefits otherwise payable under any Parent Benefit Plan, (iii) result in the acceleration of the time of payment, funding or vesting of any benefits under any Parent Benefit Plan, (iv) require any contribution or payment to fund any obligation under any Parent Benefit Plan or (v) limit the right to merge, amend or terminate any Parent Benefit Plan.

(j) Except as set forth in *Section 3.17(j)* of the Parent Disclosure Schedule, neither the execution of this Agreement, nor the consummation of the Contemplated Transactions (either alone or when combined with the occurrence of any other event, including without limitation, a termination of employment) will result in the receipt or retention by any person who is a "disqualified individual" (within the meaning of Code Section 280G) with respect to Parent of any payment or benefit that is or could be characterized as a "parachute payment" (within the meaning of Code Section 280G), determined without regard to the application of Code Section 280G(b)(5).

(k) The exercise price of each Parent Option is not and never has been and can never be less than the fair market value of one share of Company Common Stock as of the grant date of such Company Option.

(l) Each Parent Benefit Plan or other agreement, arrangement, practice or program providing for deferred compensation that constitutes a "nonqualified deferred compensation

plan" (as defined in Section 409A(d)(1) of the Code and the regulations promulgated thereunder) is, and has been, established, administered and maintained in compliance with the requirements of Section 409A of the Code and the regulations promulgated thereunder in all material respects.

(m) No current or former employee, officer, director, independent contractor or other service provider of Parent has any "gross up" agreements with Parent or other right or assurance of reimbursement by Parent or any of its Subsidiaries for any Taxes imposed under Code Section 409A or Code Section 4999.

(n) Parent does not maintain any employee benefit plan outside of the United States.

(o) Parent has provided to the Company a true and correct list, as of the date of this Agreement, containing the names of all current full-time, part-time or temporary employees and independent contractors (and indication as such), and, as applicable: (i) the annualized rates of all compensation (including wages, salary or fees, commissions, director's fees, fringe benefits, bonuses, profit sharing payments, and other payments or benefits of any type) to each person is eligible to receive; (ii), dates of employment or service; (iii) title and, with respect to independent contractors, a current written description of such person's contracting services; (iv) any eligibility to receive severance, notice of termination, retention payment, change of control payment, or other similar compensation; (v) visa status, if applicable; and (vi) with respect to employees, a designation of whether they are classified as exempt or non-exempt for purposes of FLSA and any similar state, federal or foreign law.

(p) Parent is not and never has been a party to, bound by, or has a duty to bargain under, any collective bargaining agreement or other Contract with a labor union, labor organization, or similar Person representing any of its employees, and there is no labor union, labor organization, or similar Person representing or, to the Knowledge of Parent, purporting to represent or seeking to represent any employees of Parent, including through the filing of a petition for representation election. There is not and has not been in the past three years, nor is there or has there been in the past three years any threat of, any strike, slowdown, work stoppage, lockout, union election petition, demand for recognition, or any similar activity or dispute, or, to the Knowledge of Parent, any union organizing activity, against Parent or any of its Subsidiaries. No event has occurred, and no condition or circumstance exists, that might directly or indirectly be likely to give rise to or provide a basis for the commencement of any such strike, slowdown, work stoppage, lockout, union election petition, demand for recognition, any similar activity or dispute, or, to the Knowledge of Parent, any union organizing activity.

(q) Parent is, and since January 1, 2016 has been, in material compliance with all applicable Laws respecting labor, employment, employment practices, and terms and conditions of employment, including worker classification, discrimination, harassment and retaliation, equal employment opportunities, fair employment practices, meal and rest periods, immigration, employee safety and health, payment of wages (including overtime wages), unemployment and workers' compensation, leaves of absence, and hours of work. Except as would not be reasonably likely to result in a material liability to Parent, with respect to employees of Parent, Parent, since January 1, 2016: (i) has withheld and reported all amounts required by Law or by agreement to be withheld and reported with respect to wages, salaries and other payments, benefits, or compensation to employees, (ii) is not liable for any arrears of wages (including overtime wages), severance pay or any Taxes or any penalty for failure to comply with any of the foregoing, and (iii) is not liable for any payment to any trust or other fund governed by or maintained by or on behalf of any Governmental Body, with respect to unemployment compensation benefits, disability, social security or other benefits or obligations

for employees (other than routine payments to be made in the Ordinary Course of Business). There are no actions, suits, claims, charges, lawsuits, investigations, audits or administrative matters pending or, to the Knowledge of Parent, threatened or reasonably anticipated against Parent relating to any employee, applicant for employment, consultant, employment agreement or Parent Benefit Plan (other than routine claims for benefits).

(r) Except as would not be reasonably likely to result in a material liability to Parent, with respect to each individual who currently renders services to Parent, Parent has accurately classified each such individual as an employee, independent contractor, or otherwise under all applicable Laws and, for each individual classified as an employee, Parent has accurately classified him or her as exempt from or ineligible for overtime under all applicable Laws. Parent has no material liability with respect to any misclassification of: (i) any Person as an independent contractor rather than as an employee, (ii) any employee leased from another employer, or (iii) any employee currently or formerly classified as exempt from or ineligible for overtime under all applicable Laws.

(s) Within the preceding five years, Parent has not implemented any "plant closing" or "mass layoff" of employees that would reasonably be expected to require notification under the WARN Act or any similar state or local Law, no such "plant closing" or "mass layoff" will be implemented before the Closing Date without advance notification to and approval of Parent, and there has been no "employment loss" as defined by the WARN Act within the ninety (90) days prior to the Closing Date.

(t) There is no Legal Proceeding, claim, unfair labor practice charge or complaint, labor dispute or grievance pending or, to the Knowledge of Parent, threatened against Parent relating to labor, employment, employment practices, or terms and conditions of employment.

3.18 ***Environmental Matters***. Parent is and since January 1, 2015 have complied with all applicable Environmental Laws, which compliance includes the possession by Parent of all permits and other Governmental Authorizations required under applicable Environmental Laws and compliance with the terms and conditions thereof, except for any failure to be in such compliance that, either individually or in the aggregate, would not reasonably be expected to be material to Parent or its business. Parent has not received since January 1, 2015 (or prior to that time, which is pending and unresolved), any written notice or other communication (in writing or otherwise), whether from a Governmental Body or other Person, that alleges that Parent is not in compliance with or has liability pursuant to any Environmental Law and, to the Knowledge of Parent, there are no circumstances that would reasonably be expected to prevent or interfere with Parent's compliance in any material respects with any Environmental Law, except where such failure to comply would not reasonably be expected to be material to Parent or its business. No current or (during the time a prior property was leased or controlled by Parent) prior property leased or controlled by Parent has had a release of or exposure to Hazardous Materials in material violation of or as would reasonably be expected to result in any material liability of Parent pursuant to Environmental Law. No consent, approval or Governmental Authorization of or registration or filing with any Governmental Body is required by Environmental Laws in connection with the execution and delivery of this Agreement or the consummation of Contemplated Transactions. Prior to the date hereof, Parent has provided or otherwise made available to the Company true and correct copies of all material environmental reports, assessments, studies and audits in the possession or control of Parent with respect to any property leased or controlled by Parent or any business operated by it.

3.19 ***Transactions with Affiliates***. *Section 3.19* of the Parent Disclosure Schedule describes any material transactions or relationships since July 25, 2017, between, on the one hand, Parent and, on the other hand, any (a) executive officer or director of Parent or, to the Knowledge of

Parent, any of such executive officer's or director's immediate family members, (b) any investment funds that are affiliated with such executive officer or director or (c) to the Knowledge of Parent, any "related person" (within the meaning of Item 404 of Regulation S-K under the Securities Act) of any such officer, director or owner (other than Parent) in each of the case of (a), (b) or (c) that is of the type that would be required to be disclosed under Item 404 of Regulation S-K under the Securities Act. Parent is not indebted to any director, officer or employee of Parent (except for amounts due as salaries and bonuses, other amounts due under employment agreements, retention agreements or employee benefit plans and amounts payable in reimbursement of expenses), and no such director, officer or employee is indebted to Parent. Except as set forth in the Parent SEC Documents filed prior to the date of this Agreement or as disclosed in *Section 3.19* of the Parent Disclosure Schedule, since the date of Parent's last proxy statement filed in 2018 with the SEC, no event has occurred that would be required to be reported by Parent pursuant to Item 404 of Regulation S-K.

3.20 ***Insurance***. Parent has delivered or made available to the Company accurate and complete copies of all material insurance policies and all material self-insurance programs and arrangements relating to the business, assets, liabilities and operations of Parent. Each of such insurance policies is in full force and effect and Parent is in compliance in all material respects with the terms thereof. Other than customary end of policy notifications from insurance carriers, since January 1, 2016, Parent has not received any notice or other communication regarding any actual or possible: (a) cancellation or invalidation of any insurance policy; or (b) refusal or denial of any coverage, reservation of rights or rejection of any material claim under any insurance policy. Parent has provided timely written notice to the appropriate insurance carrier(s) of each Legal Proceeding that is currently pending against Parent for which Parent has insurance coverage, and no such carrier has issued a denial of coverage or a reservation of rights with respect to any such Legal Proceeding, or informed Parent of its intent to do so.

3.21 ***No Financial Advisors***. Except as set forth on *Section 3.21* of the Parent Disclosure Schedule, no broker, finder or investment banker is entitled to any brokerage fee, finder's fee, opinion fee, success fee, transaction fee or other fee or commission in connection with the Contemplated Transactions based upon arrangements made by or on behalf of Parent.

3.22 ***Anti-Bribery***. Neither Parent nor any of its directors, officers, employees or, to Parent's Knowledge, agents or any other Person acting on its behalf has directly or indirectly made any bribes, rebates, payoffs, influence payments, kickbacks, illegal payments, illegal political contributions, or other payments, in the form of cash, gifts, or otherwise, or taken any other action, in violation of Anti-Bribery Laws. Parent is not and has not been the subject of any investigation or inquiry by any Governmental Body with respect to potential violations of Anti-Bribery Laws.

3.23 ***Valid Issuance***. The Parent Common Stock to be issued in the Merger will, when issued in accordance with the provisions of this Agreement, have been duly authorized and be validly issued, fully paid and nonassessable.

3.24 ***Opinion of Financial Advisor***. The Parent Board has received an opinion of Ladenburg Thalmann & Co. Inc. to the effect that, as of the date of this Agreement and subject to the assumptions, qualifications, limitations and other matters set forth therein, the Consideration is fair, from a financial point of view, to the holders of Parent Common Stock. It is agreed and understood that such opinion is for the benefit of the Parent Board and may not be relied upon by the Company.

3.25 ***Disclosure; Parent Information***. The information relating to Parent to be contained in the Registration Statement will not, on the date the Registration Statement is filed with the SEC, at any time it is amended or supplemented, or at the time it becomes effective under the Securities

Act, contain any untrue statement of any material fact, or omit to state any material fact required to be stated therein or necessary in order to make the statements therein not false or misleading at the time and in light of the circumstances under which such statement is made. The information in the Proxy Statement relating to Parent will not, on the date the Proxy Statement is first mailed to Parent Stockholders or at the time of the Parent Stockholders' Meeting, contain any untrue statement of any material fact, or omit to state any material fact required to be stated therein or necessary in order to make the statements therein not false or misleading at the time and in light of the circumstances under which such statement is made. Notwithstanding the foregoing, no representation is made by Parent or Merger Sub with respect to the information that has been or will be supplied by the Company, any of its Subsidiaries or any of their respective Representatives for inclusion in the Registration Statement or Proxy Statement.

3.26 ***Disclaimer of Other Representations or Warranties***.

(a) Except as previously set forth in this *Section 3* or in any certificate delivered by Parent or Merger Sub to the Company pursuant to this Agreement, neither Parent nor Merger Sub makes any representation or warranty, express or implied, at law or in equity, with respect to it or any of its assets, liabilities or operations, and any such other representations or warranties are hereby expressly disclaimed.

(b) Each of Parent and Merger Sub acknowledges and agrees that, except for the representations and warranties of the Company set forth in *Section 2*, none of Parent, Merger Sub or any of their respective Representatives is relying on any other representation or warranty of the Company or any other Person made outside of *Section 2*, including regarding the accuracy or completeness of any such other representations or warranties or the omission of any material information, whether express or implied, in each case, with respect to the Contemplated Transactions.

**Section 4. CERTAIN COVENANTS OF THE PARTIES**

4.1 ***Operation of Parent's Business***.

(a) Except as set forth on *Section 4.1(a)* of the Parent Disclosure Schedule, as expressly permitted by this Agreement (including any Permitted Disposition or Parent Financing), as required by applicable Law or unless the Company shall otherwise consent in writing (which consent shall not be unreasonably withheld, delayed or conditioned), during the period commencing on the date of this Agreement and continuing until the earlier to occur of the termination of this Agreement pursuant to *Section 9* and the Effective Time (the "***Pre-Closing Period***"): each of Parent and Merger Sub shall conduct its business and operations in the Ordinary Course of Business and in compliance in all material respects with all applicable Laws and the requirements of all Contracts that constitute Parent Material Contracts.

(b) Except (i) as expressly permitted by this Agreement (including any Permitted Disposition or Parent Financing, in either case, that has been approved in writing by the Company (such approval not to be unreasonably withheld, conditioned or delayed)), (ii) as set forth in *Section 4.1(b)* of the Parent Disclosure Schedule, (iii) as required by applicable Law or (iv) with the prior written consent of the Company (which consent shall not be unreasonably withheld, delayed or conditioned), at all times during the Pre-Closing Period, Parent shall not, nor shall it cause or permit Merger Sub to, do any of the following:

(i) declare, accrue, set aside or pay any dividend or make any other distribution in respect of any shares of its capital stock or repurchase, redeem or otherwise reacquire any shares of its capital stock or other securities (except in connection with the payment of the exercise price and/or withholding Taxes incurred upon the exercise, settlement or vesting of any award granted under the Parent Stock Plan in accordance with the terms of such award in effect on the date of this Agreement);

(ii) sell, issue, grant, pledge, accelerate the vesting of (as applicable), or otherwise dispose of or encumber or authorize any of the foregoing with respect to: (A) any capital stock or other security of Parent (except for Parent Common Stock issued upon the valid exercise of outstanding Parent Options or Parent Warrants); (B) any option, warrant or right to acquire any capital stock or any other security; or (C) any instrument convertible into or exchangeable for any capital stock or other security of Parent;

(iii) except as required to give effect to anything in contemplation of the Closing, amend any of its Organizational Documents, or effect or be a party to any merger, consolidation, share exchange, business combination, recapitalization, reclassification of shares, stock split, reverse stock split, liquidation, dissolution or similar transaction except, for the avoidance of doubt, the Contemplated Transactions;

(iv) form any Subsidiary or acquire any equity interest, business or other interest in any other Entity, or enter into a joint venture with any other Entity or enter into a new line of business;

(v) (A) lend or advance money to any Person (except for the advancement of expenses to employees, directors and consultants in the Ordinary Course of Business), (B) incur or guarantee any indebtedness for borrowed money, (C) guarantee any debt securities of others, (D) forgive or discharge in whole or in part any outstanding loans or advances, or prepay any indebtedness for borrowed money or (E) make any capital expenditure or commitment in excess of the budgeted capital expenditure and commitment amounts set forth in the Parent operating budget delivered to the Company concurrently with the execution of this Agreement (the "***Parent Budget***");

(vi) other than as required by applicable Law or the terms of any Parent Benefit Plan as in effect on the date of this Agreement: (A) adopt, terminate, establish or enter into any Parent Benefit Plan or increase costs under existing Parent Benefit Plans; (B) cause or permit any Parent Benefit Plan to be amended in any material respect; (C) issue, deliver, grant or sell or authorize or propose the issuance, delivery, grant or sale of any equity interests; (D) pay any bonus (including any transaction-related bonus or other similar success fee) or make any profit-sharing or similar payment to, or increase the amount of the wages, salary, commissions, benefits or other compensation or remuneration payable to, any of its directors, officers or employees; (E) increase the severance or change of control benefits offered to any current or new employees, directors or consultants; (F) hire, terminate or give notice of termination to any (x) officer or (y) employee, other than a termination for cause; or (G) accelerate the vesting or extend the exercise period for outstanding equity awards.

(vii) recognize any labor union, labor organization, work council or similar Person except as otherwise required by law and after using reasonable efforts to provide advance notice to the Company;

(viii) acquire any material asset or business or sell, lease or otherwise irrevocably dispose of any of its material assets or properties, or grant any Encumbrance with respect to such assets or properties;

(ix) sell, assign, transfer, license, sublicense, abandon or otherwise dispose of any Parent IP or any Intellectual Property Rights exclusively licensed to Parent or its Subsidiaries;

(x) make, change or revoke any material Tax election, fail to pay any income or other material Tax as such Tax becomes due and payable, file any amendment making any material change to any Tax Return, settle or compromise any income or other material

Tax liability, enter into any Tax allocation, sharing, indemnification or other similar agreement or arrangement (other than customary commercial contracts entered into in the Ordinary Course of Business the principal subject matter of which is not Taxes), request or consent to any extension or waiver of any limitation period with respect to any claim or assessment for any income or other material Taxes (other than pursuant to an extension of time to file any Tax Return granted in the Ordinary Course of Business of not more than six months), or adopt or change any material accounting method in respect of Taxes;

(xi) enter into, materially amend or terminate any Parent Material Contract;

(xii) except as otherwise set forth in the Parent Budget, make any expenditures, incur any Liabilities or discharge or satisfy any Liabilities, in each case, in an amount that exceeds the Parent Budget by $25,000 individually or that exceeds the aggregate amount of the Parent Budget by $50,000;

(xiii) other than as required by Law or GAAP, take any action to change accounting policies or procedures;

(xiv) initiate or settle any Legal Proceeding; or

(xv) agree, resolve, offer or commit to do any of the foregoing.

Nothing contained in this Agreement shall give the Company, directly or indirectly, the right to control or direct the operations of Parent prior to the Effective Time. Prior to the Effective Time, Parent shall exercise, consistent with the terms and conditions of this Agreement, complete unilateral control and supervision over its business operations.

4.2 ***Operation of the Company's Business***.

(a) Except as set forth on *Section 4.2* of the Company Disclosure Schedule, as expressly permitted by this Agreement (including the Pre-Closing Financing), as required by applicable Law or unless Parent shall otherwise consent in writing (which consent shall not be unreasonably withheld, conditioned or delayed), during the Pre-Closing Period: each of the Company and its Subsidiaries shall conduct its business and operations in the Ordinary Course of Business and in compliance in all material respects with all applicable Laws and the requirements of all Contracts that constitute Company Material Contracts.

(b) Except (i) as expressly permitted by this Agreement (including the Pre-Closing Financing), (ii) as set forth in *Section 4.2* of the Company Disclosure Schedule, (iii) as required by applicable Law or (iv) with the prior written consent of Parent (which consent shall not be unreasonably withheld, delayed or conditioned), at all times during the Pre-Closing Period, the Company shall not, nor shall it cause or permit any of its Subsidiaries to, do any of the following:

(i) declare, accrue, set aside or pay any dividend or make any other distribution in respect of any shares of its capital stock or repurchase, redeem or otherwise reacquire any shares of its capital stock or other securities (except for shares of Company Common Stock from terminated employees, directors or consultants of the Company);

(ii) sell, issue, grant, pledge, accelerate the vesting of (as applicable) or otherwise dispose of or encumber or authorize any of the foregoing with respect to: (A) any capital stock or other security of the Company or any of its Subsidiaries (except for shares of outstanding Company Common Stock issued upon the valid exercise of Company Options); (B) any option, warrant or right to acquire any capital stock or any other security, other than option grants to employees and service providers in the Ordinary

Course of Business; or (C) any instrument convertible into or exchangeable for any capital stock or other security of the Company or any of its Subsidiaries;

(iii) except as required to give effect to anything in contemplation of the Closing, amend any of its or its Subsidiaries' Organizational Documents, or effect or be a party to any merger, consolidation, share exchange, business combination, recapitalization, reclassification of shares, stock split, reverse stock split, liquidation, dissolution or similar transaction except, for the avoidance of doubt, the Contemplated Transactions;

(iv) form any Subsidiary or acquire any equity interest, business or other interest in any other Entity or enter into a joint venture with any other Entity or enter into a new line of business;

(v) (A) lend or advance money to any Person (except for the advancement of expenses to employees, directors and consultants in the Ordinary Course of Business), (B) incur or guarantee any indebtedness for borrowed money, (C) guarantee any debt securities of others, (D) forgive or discharge in whole or in part any outstanding loans or advances, or prepay any indebtedness for borrowed money, or (E) make any capital expenditure or commitment in excess of the budgeted capital expenditure and commitment amounts set forth in the Company operating budget delivered to Parent concurrently with the execution of this Agreement (the "***Company Budget***");

(vi) other than as required by applicable Law or the terms of any Company Benefit Plan as in effect on the date of this Agreement: (A) adopt, terminate, establish or enter into any Company Benefit Plan; (B) cause or permit any Company Benefit Plan to be amended in any material respect; (C) pay any bonus (including any transaction-related bonus or other similar success fee) or make any profit-sharing or similar payment to, or increase the amount of the wages, salary, commissions, benefits or other compensation or remuneration payable to, any of its directors, officers or employees, other than increases in base salary and annual cash bonus opportunities and payments made in the Ordinary Course of Business consistent with past practice; (D) increase the severance or change of control benefits offered to any current or new employees, directors or consultants or (E) terminate or give notice of termination to any officer, other than any termination for cause;

(vii) recognize any labor union, labor organization, work council or similar Person except as otherwise required by law and after using reasonable efforts to provide advance notice to Parent;

(viii) acquire any material asset or business or sell, lease or otherwise irrevocably dispose of any of its material assets or properties, or grant any Encumbrance with respect to such assets or properties, except in the Ordinary Course of Business;

(ix) sell, assign, transfer, license, sublicense or otherwise dispose of any Company IP or any Intellectual Property Rights exclusively licensed to the Company or its Subsidiaries (other than pursuant to non-exclusive licenses in the Ordinary Course of Business);

(x) make, change or revoke any material Tax election, fail to pay any income or other material Tax as such Tax becomes due and payable, file any amendment making any material change to any Tax Return, settle or compromise any income or other material Tax liability, enter into any Tax allocation, sharing, indemnification or other similar agreement or arrangement (other than customary commercial contracts entered into in the Ordinary Course of Business the principal subject matter of which is not Taxes), request or consent to any extension or waiver of any limitation period with respect to any claim or assessment for any income or other material Taxes (other than pursuant to an

extension of time to file any Tax Return granted in the Ordinary Course of Business of not more than six months), or adopt or change any material accounting method in respect of Taxes;

(xi) enter into any Company Material Contract outside the Ordinary Course of Business, or materially amend or terminate any Company Material Contract;

(xii) except as otherwise set forth in the Company Budget, make any expenditures, incur any Liabilities or discharge or satisfy any Liabilities, in each case, in amounts that exceed the aggregate amount of the Company Budget by $50,000;

(xiii) other than as required by Law or GAAP, take any action to change accounting policies or procedures;

(xiv) initiate or settle any Legal Proceeding; or

(xv) agree, resolve, offer or commit to do any of the foregoing.

(c) Nothing contained in this Agreement shall give Parent, directly or indirectly, the right to control or direct the operations of the Company prior to the Effective Time. Prior to the Effective Time, the Company shall exercise, consistent with the terms and conditions of this Agreement, complete unilateral control and supervision over its business operations.

4.3 ***Access and Investigation***.

(a) Subject to the terms of the Confidentiality Agreement, which the Parties agree will continue in full force following the date of this Agreement, during the Pre-Closing Period, upon reasonable notice, Parent, on the one hand, and the Company, on the other hand, shall and shall use commercially reasonable efforts to cause such Party's Representatives to: (i) provide the other Party and such other Party's Representatives with reasonable access during normal business hours to such Party's Representatives, personnel, property and assets and to all existing books, records, Tax Returns, work papers and other documents and information relating to such Party and its Subsidiaries; (ii) provide the other Party and such other Party's Representatives with such copies of the existing books, records, Tax Returns, work papers, product data, and other documents and information relating to such Party and its Subsidiaries, and with such additional financial, operating and other data and information regarding such Party and its Subsidiaries as the other Party may reasonably request; (iii) permit the other Party's officers and other employees to meet, upon reasonable notice and during normal business hours, with the chief financial officer and other officers and managers of such Party responsible for such Party's financial statements and the internal controls of such Party to discuss such matters as the other Party may deem necessary or appropriate and; (iv) make available to the other Party copies of unaudited financial statements, material operating and financial reports prepared for senior management or the board of directors of such Party, and any material notice, report or other document filed with or sent to or received from any Governmental Body in connection with the Contemplated Transactions. Any investigation conducted by either Parent or the Company pursuant to this *Section 4.3(a)* shall be conducted in such manner as not to interfere unreasonably with the conduct of the business of the other Party.

(b) Notwithstanding the foregoing, any Party may restrict the foregoing access to the extent that (i) any Law applicable to such Party requires such Party to restrict or prohibit access to any such properties or information, (ii) the consent of a third party is required to provide such access to any such properties or information, or (iii) as may be necessary in the reasonable good faith judgment of such Party to preserve the attorney-client privilege under any circumstances in which such privilege may be jeopardized by such disclosure or access;

provided, that such Party shall use its commercially reasonable efforts to (A) obtain the required consent of any such third party to provide access to such properties or information, (B) develop an alternative to providing access to such properties or information so as to address such matters that is reasonably acceptable to Parent and the Company and (C) implement appropriate and mutually agreeable measures to permit the disclosure of such information in a manner to remove the basis for the objection, including by arrangement of appropriate clean room procedures, redaction or entry into a customary joint defense agreement with respect to any information to be so provided, if the Parties determine that doing so would reasonably permit the disclosure of such information without violating applicable Law or jeopardizing such attorney-client privilege.

4.4 ***Parent Non-Solicitation***.

(a) Parent agrees that, during the Pre-Closing Period, it shall not, and shall not authorize any of its Representatives to, directly or indirectly: (i) solicit, initiate or knowingly encourage, induce or facilitate the communication, making, submission or announcement of any Acquisition Proposal or Acquisition Inquiry or take any action that could reasonably be expected to lead to an Acquisition Proposal or Acquisition Inquiry; (ii) furnish any non-public information regarding Parent to any Person in connection with or in response to an Acquisition Proposal or Acquisition Inquiry; (iii) engage in discussions or negotiations with any Person with respect to any Acquisition Proposal or Acquisition Inquiry; (iv) approve, endorse or recommend any Acquisition Proposal (subject to *Section 5.3*); (v) execute or enter into any letter of intent or any Contract contemplating or otherwise relating to any Acquisition Transaction (other than a confidentiality agreement permitted under this *Section 4.4(a)*); or (vi) publicly propose to do any of the foregoing; *provided*, *however*, that, notwithstanding anything contained in this *Section 4.4* and subject to compliance with this *Section 4.4*, prior to obtaining the Required Parent Stockholder Vote, Parent may, directly or indirectly through any of its Representatives, furnish non-public information regarding Parent to, and enter into discussions or negotiations with, any Person in response to a *bona fide* Acquisition Proposal by such Person, which the Parent Board determines in good faith, after consultation with Parent's outside financial advisors and outside legal counsel, constitutes, or is reasonably likely to result in, a Superior Offer (and is not withdrawn) if: (A) neither Parent nor any of its Representatives shall have breached this *Section 4.4* in any material respect, (B) the Parent Board concludes in good faith based on the advice of outside legal counsel, that the failure to take such action is reasonably likely to be inconsistent with the fiduciary duties of the Parent Board under applicable Law; (C) at least two (2) Business Days prior to furnishing such nonpublic confidential information to, or entering into discussions with, such Person, Parent gives the Company written notice of the identity of such Person and of Parent's intention to furnish nonpublic information to, or enter into discussions with, such Person; (D) prior to furnishing any information, Parent receives from such Person an executed confidentiality agreement containing provisions, in the aggregate, at least as favorable to Parent as those contained in the Confidentiality Agreement; and (E) at least two Business Days prior to furnishing any such nonpublic information to such Person, Parent furnishes such nonpublic information to the Company (to the extent such information has not been previously furnished by Parent to the Company). Without limiting the generality of the foregoing, Parent acknowledges and agrees that, in the event any Representative of Parent (whether or not such Representative is purporting to act on behalf of Parent) takes any action that, if taken by Parent, would constitute a breach of this *Section 4.4*, the taking of such action by such Representative shall be deemed to constitute a breach of this *Section 4.4* by Parent for purposes of this Agreement.

(b) If Parent or any Representative of Parent receives an Acquisition Proposal or Acquisition Inquiry at any time during the Pre-Closing Period, then Parent shall promptly (and in no event later than one Business Day after Parent becomes aware of such Acquisition Proposal or Acquisition Inquiry) advise the Company orally and in writing of such Acquisition Proposal or Acquisition Inquiry (including the identity of the Person making or submitting such Acquisition Proposal or Acquisition Inquiry, and the material terms thereof). Parent shall keep the Company reasonably informed in all material respects with respect to the status and material terms of any such Acquisition Proposal or Acquisition Inquiry and any material modification or proposed material modification thereto.

(c) Parent shall immediately cease and cause to be terminated any existing discussions, negotiations and communications with any Person that relate to any Acquisition Proposal or Acquisition Inquiry as of the date of this Agreement and promptly request the destruction or return of any nonpublic information of Parent provided to such Person.

4.5 ***Company Non-Solicitation***.

(a) The Company agrees that, during the Pre-Closing Period, neither it nor any of its Subsidiaries shall, nor shall it or any of its Subsidiaries authorize any of its Representatives to, directly or indirectly: (i) solicit, initiate or knowingly encourage, induce or facilitate the communication, making, submission or announcement of any Acquisition Proposal or Acquisition Inquiry or take any action that could reasonably be expected to lead to an Acquisition Proposal or Acquisition Inquiry; (ii) furnish any non-public information regarding the Company or any of its Subsidiaries to any Person in connection with or in response to an Acquisition Proposal or Acquisition Inquiry; (iii) engage in discussions or negotiations with any Person with respect to any Acquisition Proposal or Acquisition Inquiry; (iv) approve, endorse or recommend any Acquisition Proposal; (v) execute or enter into any letter of intent or any Contract contemplating or otherwise relating to any Acquisition Transaction; or (vi) publicly propose to do any of the foregoing *provided*, *however*, that, notwithstanding anything contained in this *Section 4.5* and subject to compliance with this *Section 4.4*, prior to obtaining the Required Company Stockholder Vote, the Company may, directly or indirectly through any of its Representatives, furnish non-public information regarding Company to, and enter into discussions or negotiations with, any Person in response to a *bona fide* Acquisition Proposal by such Person, which the Company Board determines in good faith, after consultation with the Company's outside financial advisors and outside legal counsel, constitutes, or is reasonably likely to result in, a Superior Offer (and is not withdrawn) if: (A) neither Company nor any of its Representatives shall have breached this *Section 4.4* in any material respect, (B) the Company Board concludes in good faith based on the advice of outside legal counsel, that the failure to take such action is reasonably likely to be inconsistent with the fiduciary duties of the Company Board under applicable Law; (C) at least two (2) Business Days prior to furnishing such nonpublic confidential information to, or entering into discussions with, such Person, the Company gives Parent written notice of the identity of such Person and of the Company's intention to furnish nonpublic information to, or enter into discussions with, such Person; (D) prior to furnishing any information, the Company receives from such Person an executed confidentiality agreement containing provisions, in the aggregate, at least as favorable to the Company as those contained in the Confidentiality Agreement; and (E) contemporaneously with furnishing any such nonpublic information to such Person, the Company furnishes such nonpublic information to Parent (to the extent such information has not been previously furnished by the Company to Parent). Without limiting the generality of the foregoing, the Company acknowledges and agrees that, in the event any Representative of the Company (whether or not such Representative is purporting to act on behalf of the Company) takes any action that, if taken by the Company, would constitute a

breach of this *Section 4.5*, the taking of such action by such Representative shall be deemed to constitute a breach of this *Section 4.5* by the Company for purposes of this Agreement.

(b) If the Company or any Representative of the Company receives an Acquisition Proposal or Acquisition Inquiry at any time during the Pre-Closing Period, then the Company shall promptly (and in no event later than one Business Day after the Company becomes aware of such Acquisition Proposal or Acquisition Inquiry) advise Parent orally and in writing of such Acquisition Proposal or Acquisition Inquiry (including the identity of the Person making or submitting such Acquisition Proposal or Acquisition Inquiry, and the material terms thereof). The Company shall keep Parent reasonably informed in all material respects with respect to the status and material terms of any such Acquisition Proposal or Acquisition Inquiry and any material modification or proposed material modification thereto.

(c) The Company shall immediately cease and cause to be terminated any existing discussions, negotiations and communications with any Person that relate to any Acquisition Proposal or Acquisition Inquiry as of the date of this Agreement and promptly request the destruction or return of any nonpublic information of the Company or any of its Subsidiaries provided to such Person.

4.6 ***Notification of Certain Matters***.

(a) During the Pre-Closing Period, the Company shall promptly notify Parent (and, if in writing, furnish copies of) if any of the following occurs: (i) any notice or other communication is received from any Person alleging that the Consent of such Person is or may be required in connection with any of the Contemplated Transactions; (ii) any Legal Proceeding against or involving or otherwise affecting the Company or its Subsidiaries is commenced, or, to the Knowledge of the Company, threatened against the Company or its Subsidiaries or, to the Knowledge of the Company, any director or officer of the Company or its Subsidiaries; (iii) the Company becomes aware of any inaccuracy in any representation or warranty made by it in this Agreement; or (iv) the failure of the Company to comply with any covenant or obligation of the Company; in the case of (iii) and (iv) that would reasonably be expected to make the timely satisfaction of any of the conditions set forth in *Sections 6* or *7*, as applicable, impossible or materially less likely. No notification given to Parent pursuant to this *Section 4.6(a)* shall change, limit or otherwise affect any of the representations, warranties, covenants or obligations of the Company or any of its Subsidiaries contained in this Agreement or the Company Disclosure Schedule for purposes of *Sections 6* and *7*, as applicable.

(b) During the Pre-Closing Period, Parent shall promptly notify the Company (and, if in writing, furnish copies of) if any of the following occurs: (i) any notice or other communication is received from any Person alleging that the Consent of such Person is or may be required in connection with any of the Contemplated Transactions; (ii) any Legal Proceeding against or involving or otherwise affecting Parent is commenced, or, to the Knowledge of Parent, threatened against Parent or, to the Knowledge of Parent, any director or officer of Parent; (iii) Parent becomes aware of any inaccuracy in any representation or warranty made by it in this Agreement; or (iv) the failure of Parent to comply with any covenant or obligation of Parent or Merger Sub; in the case of (iii) and (iv) that would reasonably be expected to make the timely satisfaction of any of the conditions set forth in *Sections 6* or *8*, as applicable, impossible or materially less likely. No notification given to the Company pursuant to this *Section 4.6(b)* shall change, limit or otherwise affect any of the representations, warranties, covenants or obligations of Parent contained in this Agreement or the Parent Disclosure Schedule for purposes of *Sections 6* and *8*, as applicable.

**Section 5. ADDITIONAL AGREEMENTS OF THE PARTIES**

5.1 ***Registration Statement; Proxy Statement***.

(a) As promptly as practicable after the date of this Agreement (but in no event later than the later of (i) 30 days following the date of this Agreement and (ii) five business days after Parent's receipt of the Company's Audited Financial Statements pursuant to *Section 5.21*), the Parties shall prepare, and Parent shall cause to be filed with the SEC, the Registration Statement, in which the Proxy Statement will be included as a prospectus. The Company and its legal counsel shall be given reasonable opportunity to review and comment on the Proxy Statement, including all amendments and supplements thereto, prior to the filing thereof with the SEC, and on the response to any comments of the SEC on the Proxy Statement, prior to the filing thereof with the SEC. Each of the Parties shall use commercially reasonable efforts to cause the Registration Statement and the Proxy Statement to comply with the applicable rules and regulations promulgated by the SEC in all material respects, to respond promptly to any comments of the SEC or its staff and to have the Registration Statement declared effective under the Securities Act as promptly as practicable after it is filed with the SEC. As soon as reasonably practicable following the date of this Agreement, Parent shall establish a record date for, duly call, give notice of and, as soon as reasonably practicable thereafter in accordance with *Section 5.3*, convene the Parent Stockholders' Meeting. Each of the Parties shall use commercially reasonable efforts to cause the Proxy Statement to be mailed to Parent's stockholders as promptly as practicable after the Registration Statement is declared effective under the Securities Act. Each Party shall promptly furnish to the other Party all information concerning such Party and such Party's Affiliates and such Party's stockholders that may be required or reasonably requested in connection with any action contemplated by this *Section 5.1*. If Parent, Merger Sub or the Company become aware of any event or information that, pursuant to the Securities Act or the Exchange Act, should be disclosed in an amendment or supplement to the Registration Statement or Proxy Statement, as the case may be, then such Party, as the case may be, shall promptly inform the other Parties thereof and shall cooperate with such other Parties in filing such amendment or supplement with the SEC and, if appropriate, in mailing such amendment or supplement to Parent's stockholders.

(b) The Company shall reasonably cooperate with Parent and provide, and require its Representatives to provide, Parent and its Representatives, with all true, correct and complete information regarding the Company or its Subsidiaries that is required by Law to be included in the Registration Statement or reasonably requested by Parent to be included in the Registration Statement. Without limiting the foregoing, each Party will use commercially reasonable efforts to cause to be delivered to the other Party a consent letter of such Party's independent accounting firm, dated no more than two Business Days before the date on which the Registration Statement becomes effective (and reasonably satisfactory in form and substance to the other Party), that is customary in scope and substance for consent letters delivered by independent public accountants in connection with registration statements similar to the Registration Statement.

5.2 ***Company Information Statement; Stockholder Written Consent***.

(a) Promptly after the Registration Statement shall have been declared effective under the Securities Act, and in any event no later than five Business Days thereafter, the Company shall prepare, with the cooperation of Parent, and cause to be mailed to its stockholders an information statement (the "***Information Statement***") to solicit (i) the Required Company Stockholder Vote pursuant to Section 228 of the DGCL: (A) adopting and approving this Agreement and the Contemplated Transactions, and (B) approving the Preferred Stock

Conversion and the Stock Split (collectively, the "***Company Stockholder Matters***"), and (ii) to the extent that the Convertible Note Conversion has not already been effected, the Required Company Stockholder Vote with respect to the Convertible Note Conversion adopting and approving the Convertible Note Conversion in accordance with the Stockholders' Agreement (the "***Company Series A Stockholder Matters***"). The Information Statement and any other materials (including any amendments thereto) submitted to the stockholders of the Company in accordance with this *Section 5.2(a)* shall be subject to Parent's advance review and reasonable approval, which approval shall not be unreasonably withheld, conditioned or delayed.

(b) The Company covenants and agrees that the Information Statement, including any pro forma financial statements included therein (and the letter to stockholders and form of Company Stockholder Written Consent included therewith), will not, at the time that the Information Statement or any amendment or supplement thereto is first mailed to the stockholders of the Company, and at the time of receipt of the Required Company Stockholder Vote, contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary in order to make the statements made therein, in light of the circumstances under which they were made, not misleading. Notwithstanding the foregoing, the Company makes no covenant, representation or warranty with respect to statements made in the Information Statement or incorporated by reference from the Registration Statement (and the letter to the stockholders and form of Company Stockholder Written Consent included therewith), if any, based on information furnished in writing by Parent specifically for inclusion therein. Each of the Parties shall use commercially reasonable efforts to cause the Information Statement to comply with the applicable rules and regulations promulgated by the SEC in all material respects.

(c) Promptly following receipt of the Required Company Stockholder Vote, the Company shall prepare and mail a notice (the "***Stockholder Notice***") to every stockholder of the Company that did not execute the Company Stockholder Written Consent. The Stockholder Notice shall (i) provide the stockholders of the Company to whom it is sent with notice of the actions taken in the Company Stockholder Written Consent, including the adoption and approval of this Agreement, the Merger and the other Contemplated Transactions and (ii) include a notice of appraisal rights of the Company's stockholders under Section 262 of the DGCL, containing such r information as is required thereunder and pursuant to applicable Law. The Stockholder Notice (including any amendments thereto) submitted to the stockholders of the Company in accordance with this *Section 5.2(c)* shall be subject to Parent's advance review and reasonable approval, which approval shall not be unreasonably withheld, conditioned or delayed.

(d) The Company agrees that, subject to *Section 5.2(e)*: (i) the Company Board shall recommend that the Company's stockholders vote to approve the Company Stockholder Matters and shall use its reasonable best efforts to solicit such approval from each of the Company Signatories within the time set forth in *Section 5.2(a)* (the recommendation of the Company Board that the Company's stockholders vote to adopt and approve this Agreement being referred to as the "***Company Board Recommendation***"); and (ii) the Company Board Recommendation shall not be withdrawn or modified (and the Company Board shall not publicly propose to withdraw or modify the Company Board Recommendation) in a manner adverse to Parent, and no resolution by the Company Board or any committee thereof to withdraw or modify the Company Board Recommendation in a manner adverse to Parent or to adopt, approve or recommend (or publicly propose to adopt, approve or recommend) any Acquisition Proposal shall be adopted or proposed (the actions set forth in the foregoing clause (ii), collectively, a "***Company Board Adverse Recommendation Change***").

(e) Notwithstanding anything to the contrary contained in *Section 5.2(d)* and subject to compliance with *Section 4.5*, if at any time prior to receipt of the Required Company Stockholder Vote:

(i) the Company has received a written Acquisition Proposal (which Acquisition Proposal did not arise out of a material breach of *Section 4.5*) from any Person that has not been withdrawn and after consultation with outside legal counsel, the Company Board shall have determined, in good faith, that such Acquisition Proposal is a Superior Offer, the Company Board may make a Company Board Adverse Recommendation Change, if and only if: (A) the Company Board determines in good faith, after consultation with the Company's outside legal counsel, that the failure to do so would be inconsistent with the fiduciary duties of the Company Board to the Company's stockholders under applicable Law; (B) the Company shall have given Parent prior written notice of its intention to consider making a Company Board Adverse Recommendation Change at least four Business Days prior to making any such Company Board Adverse Recommendation Change (a "***Company Determination Notice***") (which notice shall not constitute a Company Board Adverse Recommendation Change); and (C) (1) the Company shall have provided to Parent a summary of the material terms and conditions of the Acquisition Proposal in accordance with *Section 4.5(b)*, (2) the Company shall have given Parent the four Business Days after delivery of the Company Determination Notice to propose revisions to the terms of this Agreement or make another proposal and shall have made its Representatives reasonably available to negotiate in good faith with Parent (to the extent Parent desires to negotiate) with respect to such proposed revisions or other proposal, if any, and (3) after considering the results of any such negotiations and giving effect to the proposals made by Parent, if any, after consultation with outside legal counsel, the Company Board shall have determined, in good faith, that such Acquisition Proposal is a Superior Offer and that the failure to make the Company Board Adverse Recommendation Change would be inconsistent with the fiduciary duties of the Company Board to the Company's stockholders under applicable Law. For the avoidance of doubt, the provisions of this *Section 5.2(e)(i)* shall also apply to any material change to the facts and circumstances relating to such Acquisition Proposal and require a new Company Determination Notice, except that the references to four Business Days shall be deemed to be three Business Days.

(ii) other than in connection with an Acquisition Proposal, the Company Board may make a Company Board Adverse Recommendation Change in response to a Company Change in Circumstance, if and only if: (A) the Company Board determines in good faith, after consultation with the Company's outside legal counsel, that the failure to do so would be inconsistent with the fiduciary duties of the Company Board to the Company's stockholders under applicable Law; (B) the Company shall have given Parent a Company Determination Notice at least four Business Days prior to making any such Company Board Adverse Recommendation Change; and (C) (1) the Company shall have specified the Company Change in Circumstance in reasonable detail, (2) the Company shall have given Parent the four Business Days after delivery of the Company Determination Notice to propose revisions to the terms of this Agreement or make another proposal, and shall have made its Representatives reasonably available to negotiate in good faith with Parent with respect to such proposed revisions or other proposal, if any, and (3) after considering the results of any such negotiations and giving effect to the proposals made by Parent, if any, after consultation with outside legal counsel, the Company Board shall have determined, in good faith, that the failure to make the Company Board Adverse Recommendation Change in response to such Company Change in Circumstance would be inconsistent with the fiduciary duties of the Company Board to the Company's

stockholders under applicable Law. For the avoidance of doubt, the provisions of this *Section 5.2(e)(ii)* shall also apply to any material change to the facts and circumstances relating to such Company Change in Circumstance and require a new Company Determination Notice, except that the references to four Business Days shall be deemed to be three Business Days.

(f) The Company's obligation to solicit the consent of its stockholders to sign the Company Stockholder Written Consent in accordance with *Section 5.2(a)* and *Section 5.2(d)* shall not be limited or otherwise affected by the commencement, disclosure, announcement or submission of any Superior Offer or other Acquisition Proposal or by any withdrawal or modification of the Company Board Recommendation.

5.3 ***Parent Stockholders' Meeting***.

(a) Promptly after the Registration Statement has been declared effective by the SEC under the Securities Act, Parent shall take all action necessary under applicable Law to call, give notice of and hold a meeting of the holders of Parent Common Stock for the purpose of seeking approval of the following (the matters contemplated by the clauses 5.3(a)(i)—(iii) below are referred to as the "***Parent Stockholder Matters***" and such meeting, the "***Parent Stockholders' Meeting***"):

(i) the amendment of Parent's certificate of incorporation to effect the Reverse Split;

(ii) the amendment of Parent's certificate of incorporation to effect the name change of Parent; and

(iii) the issuance of Parent Common Stock to the Company's stockholders pursuant to this Agreement and the change of control of Parent resulting from the Merger pursuant to Nasdaq rules.

(b) The Parent Stockholders' Meeting shall be held as promptly as practicable after the Registration Statement is declared effective under the Securities Act. Parent shall take reasonable measures to ensure that all proxies solicited in connection with the Parent Stockholders' Meeting are solicited in compliance with all applicable Law. Notwithstanding anything to the contrary contained herein, if on the date of the Parent Stockholders' Meeting, or a date preceding the date on which the Parent Stockholders' Meeting is scheduled, Parent reasonably believes that (i) it will not receive proxies sufficient to obtain the Required Parent Stockholder Vote, whether or not a quorum would be present or (ii) it will not have sufficient shares of Parent Common Stock represented (whether in person or by proxy) to constitute a quorum necessary to conduct the business of the Parent Stockholders' Meeting, Parent may postpone or adjourn, or make one or more successive postponements or adjournments of, the Parent Stockholders' Meeting as long as the date of the Parent Stockholders' Meeting is not postponed or adjourned more than an aggregate of 30 calendar days in connection with any postponements or adjournments.

(c) Parent agrees that, subject to *Section 5.3(d)*: (i) the Parent Board shall recommend that the holders of Parent Common Stock vote to approve the Parent Stockholder Matters and use reasonable best efforts to solicit such approval, (ii) the Proxy Statement shall include a statement to the effect that the Parent Board recommends that Parent's stockholders vote to approve the Parent Stockholder Matters (the recommendation of the Parent Board with respect to the Parent Stockholder Matters being referred to as the "***Parent Board Recommendation***"); and (iii) the Parent Board Recommendation shall not be withheld, amended, withdrawn or modified (and the Parent Board shall not publicly propose to withhold, amend, withdraw or modify the Parent Board Recommendation) in a manner

adverse to the Company (failure by Parent to take the actions set forth in the foregoing clauses (i), (ii) and/or (iii), collectively, a "***Parent Board Adverse Recommendation Change***").

(d) Notwithstanding anything to the contrary contained in *Section 5.3(c)* and subject to compliance with *Section 4.4*, if at any time prior to the approval of Parent Stockholder Matters by the Required Parent Stockholder Vote:

(i) Parent has received a written Acquisition Proposal (which Acquisition Proposal did not arise out of a material breach of *Section 4.4*) from any Person that has not been withdrawn and after consultation with outside legal counsel, the Parent Board shall have determined, in good faith, that such Acquisition Proposal is a Superior Offer, the Parent Board may make a Parent Board Adverse Recommendation Change, if and only if: (A) the Parent Board determines in good faith, after consultation with Parent's outside legal counsel, that the failure to do so would be inconsistent with the fiduciary duties of the Parent Board to Parent's stockholders under applicable Law; (B) Parent shall have given the Company prior written notice of its intention to consider making a Parent Board Adverse Recommendation Change at least four Business Days prior to making any such Parent Board Adverse Recommendation Change (a "***Parent Determination Notice***") (which notice shall not constitute a Parent Board Adverse Recommendation Change); and (C) (1) Parent shall have provided to the Company a summary of the material terms and conditions of the Acquisition Proposal in accordance with *Section 4.4(b)*, (2) Parent shall have given the Company the four Business Days after delivery of the Parent Determination Notice to propose revisions to the terms of this Agreement or make another proposal and shall have made its Representatives reasonably available to negotiate in good faith with the Company (to the extent the Company desires to negotiate) with respect to such proposed revisions or other proposal, if any, and (3) after considering the results of any such negotiations and giving effect to the proposals made by the Company, if any, after consultation with outside legal counsel, the Parent Board shall have determined, in good faith, that such Acquisition Proposal is a Superior Offer and that the failure to make the Parent Board Adverse Recommendation Change would be inconsistent with the fiduciary duties of the Parent Board to Parent's stockholders under applicable Law. For the avoidance of doubt, the provisions of this *Section 5.3(d)(i)* shall also apply to any material change to the facts and circumstances relating to such Acquisition Proposal and require a new Parent Determination Notice, except that the references to four Business Days shall be deemed to be three Business Days.

(ii) Other than in connection with an Acquisition Proposal, the Parent Board may make a Parent Board Adverse Recommendation Change in response to a Parent Change in Circumstance, if and only if: (A) the Parent Board determines in good faith, after consultation with Parent's outside legal counsel, that the failure to do so would be inconsistent with the fiduciary duties of the Parent Board to Parent's stockholders under applicable Law; (B) Parent shall have given the Company a Parent Determination Notice at least four Business Days prior to making any such Parent Board Adverse Recommendation Change; and (C) (1) Parent shall have specified the Parent Change in Circumstance in reasonable detail, (2) Parent shall have given the Company the four Business Days after delivery of the Parent Determination Notice to propose revisions to the terms of this Agreement or make another proposal, and shall have made its Representatives reasonably available to negotiate in good faith with the Company with respect to such proposed revisions or other proposal, if any, and (3) after considering the results of any such negotiations and giving effect to the proposals made by the Company, if any, after consultation with outside legal counsel, the Parent Board shall have determined, in good faith, that the failure to make the Parent Board Adverse

Recommendation Change in response to such Parent Change in Circumstance would be inconsistent with the fiduciary duties of the Parent Board to Parent's stockholders under applicable Law. For the avoidance of doubt, the provisions of this *Section 5.3(d)(ii)* shall also apply to any material change to the facts and circumstances relating to such Parent Change in Circumstance and require a new Parent Determination Notice, except that the references to four Business Days shall be deemed to be three Business Days.

(e) Parent's obligation to call, give notice of and hold the Parent Stockholders' Meeting to approve the Parent Stockholder Matters in accordance with *Section 5.3(a)* shall not be limited or otherwise affected by the commencement, disclosure, announcement or submission of any Superior Offer or other Acquisition Proposal or by any withdrawal or modification of the Parent Board Recommendation.

(f) Nothing contained in this Agreement shall prohibit Parent or the Parent Board from (i) complying with Rules 14d-9 and 14e-2(a) promulgated under the Exchange Act, (ii) issuing a "stop, look and listen" communication or similar communication of the type contemplated by Section 14d-9(f) under the Exchange Act or (iii) otherwise making any disclosure to Parent's stockholders if the Parent Board determines in good faith, after consultation with its outside legal counsel, that the failure to make such disclosure would be inconsistent with its fiduciary duties to Parent's stockholders under applicable Law.

5.4 ***Regulatory Approvals***.

(a) Each Party shall (i) consult and cooperate with one another, and consider in good faith the views of one another, in connection with any analyses, appearances, presentations, memoranda, briefs, arguments, opinions and proposals made or submitted by or on behalf of any Party in connection with proceedings under or relating to the HSR Act or any foreign or other antitrust Law, (ii) coordinate with one another in preparing and exchanging such materials and (iii) promptly provide one another (and its counsel) with copies of all filings, presentations or submissions made by such Party to any Governmental Body in connection with this Agreement. In addition, any Party may, as it deems advisable and necessary, reasonably designate any confidential and competitively sensitive material provided to the other parties under this *Section 5.4* as "Outside Counsel Only" or redact information regarding valuation or negotiation strategy. Materials identified as "Outside Counsel Only" and the information contained therein shall be given only to the outside legal counsel of the recipient and will not be disclosed by such outside counsel to employees, officers, or directors of the recipient, unless express written permission is obtained in advance from the source of the materials.

(b) Each of Parent and the Company shall use its respective commercially reasonable efforts to resolve objections, if any, as may be asserted by any Governmental Body with respect to the Contemplated Transactions under any applicable antitrust Laws, including responding promptly to and complying with any requests for information relating to this Agreement or any initial filings required under the HSR Act and any other additional filings from any Governmental Body charged with enforcing, applying, administering or investigating any antitrust Laws.

(c) Notwithstanding anything to the contrary herein (i) Parent shall not have any obligation to litigate or contest any such Legal Proceeding or order resulting therefrom and (ii) Parent shall be under no obligation to make proposals, execute or carry out agreements or submit to orders providing for (A) the sale, license, divestiture, or other disposition or holding separate of any assets of Parent or the Company or any of their respective Affiliates, (B) the imposition of any limitation or restriction on the ability of Parent or any of its Affiliates to freely conduct their business or, following the Closing, the business of the Company, or

(C) any limitation or regulation on the ability of Parent or any of its Affiliates to exercise full rights of ownership of the Company.

5.5 ***Company Options, Parent Options and Parent Warrants***.

(a) At the Effective Time, each Company Option that is outstanding and unexercised immediately prior to the Effective Time under the Company Plan, whether or not vested, shall be converted into and become an option to purchase Parent Common Stock, and Parent shall assume the Company Plan and each such Company Option in accordance with the terms (as in effect as of the date of this Agreement) of the Company Plan and the terms of the stock option agreement by which such Company Option is evidenced. All rights with respect to Company Common Stock under Company Options assumed by Parent shall thereupon be converted into rights with respect to Parent Common Stock. Accordingly, from and after the Effective Time: (i) each Company Option assumed by Parent may be exercised solely for shares of Parent Common Stock; (ii) the number of shares of Parent Common Stock subject to each Company Option assumed by Parent shall be determined by multiplying (A) the number of shares of Company Common Stock that were subject to such Company Option, as in effect immediately prior to the Effective Time, by (B) the Exchange Ratio, and rounding the resulting number down to the nearest whole number of shares of Parent Common Stock; (iii) the per share exercise price for the Parent Common Stock issuable upon exercise of each Company Option assumed by Parent shall be determined by dividing (A) the per share exercise price of Company Common Stock subject to such Company Option, as in effect immediately prior to the Effective Time, by (B) the Exchange Ratio and rounding the resulting exercise price up to the nearest whole cent; and (iv) any restriction on the exercise of any Company Option assumed by Parent shall continue in full force and effect and the term, exercisability, vesting schedule and other provisions of such Company Option shall otherwise remain unchanged; *provided, however*, that: (A) to the extent provided under the terms of the stock option agreement by which the Company Options are evidenced and the Company Plan, such Company Option may be amended as necessary to reflect Parent's substitution of the Company Options with options to purchase Parent Common Stock (such as by making any change in control or similar definition relate to Parent and having any provision that provides for the adjustment of Company Options upon the occurrence of certain corporate events relate to corporate events that relate to Parent and/or Parent Common Stock), subject to the Company's consent, which shall not be unreasonably withheld, conditioned or delayed; and (B) the Parent Board or a committee thereof shall succeed to the authority and responsibility of the Company Board or any committee thereof with respect to each Company Option assumed by Parent. Notwithstanding anything to the contrary in this *Section 5.5(a)* or any other provision of this Agreement, (i) the conversion of each Company Option which is an "incentive stock option" (within the meaning of Section 422(b) of the Code) into an option to purchase shares of Parent Common Stock shall be made in a manner which complies with all of the requirements of Treasury Regulation Section 1.424-1(a) so that such conversion does not constitute a "modification" of the Company Option within the meaning of Treasury Regulation Section 1.424-1(e), and (ii) the conversion of each Company Option which is not an "incentive stock option" into an option to purchase shares of Parent Common Stock shall be made in a manner which complies with all of the requirements of Treasury Regulation Section 1.409A-1(b)(5)(v)(D) so that such conversion does not constitute the grant of a new option for purposes of Section 409A of the Code and the regulations thereunder.

(b) Parent shall file with the SEC, promptly, but in any event not later than ten Business Days after the Effective Time, a registration statement on Form S-8 (or any successor form),

relating to the shares of Parent Common Stock issuable with respect to Company Options assumed by Parent in accordance with *Section 5.5(a)*.

(c) Prior to the Effective Time, the Company shall take all actions that may be necessary (under the Company Plan and otherwise) to effectuate the provisions of this *Section 5.5* and to ensure that, from and after the Effective Time, holders of Company Options have no rights with respect thereto other than those specifically provided in this *Section 5.5*.

(d) Prior to the Closing, the Parent Board shall have adopted appropriate resolutions and taken all other actions necessary and appropriate to provide that each unexpired, unexercised and unvested Parent Option shall be accelerated in full effective as of immediately prior to the Effective Time. Effective as of the Effective Time, each outstanding and unexercised Parent Option having an exercise price per share less than the Parent Closing Price shall be entitled to receive a number of shares of Parent Common Stock calculated by dividing (a) the product of (i) the total number of shares of Parent Common Stock previously subject to such Parent Option, and (ii) the excess of the Parent Closing Price over the exercise price per share of the Parent Common Stock previously subject to such Parent Option by (b) the Parent Closing Price. Notwithstanding anything herein to the contrary, the tax withholding obligations for each holder receiving shares of Parent Common Stock in accordance with the preceding sentence shall be satisfied by Parent withholding from issuance that number of shares of Parent Common Stock calculated by multiplying the maximum statutory withholding rate for such holder in connection with such issuance by the number of shares of parent Common Stock to be issued in accordance with the preceding sentence, and rounding up to the nearest whole share. Each outstanding and unexercised Parent Option that has an exercise price equal to or greater than the Parent Closing Price shall be terminated and cease to exist as of immediately prior to the Effective Time for no consideration. Prior to the Effective time, Parent shall take all actions that may be necessary (under the Parent Stock Plans and otherwise, including, if it deems it necessary or desirable, adopting and approving amendments to the existing underlying grant agreements) to effectuate the provisions of this *Section 5.5(d)* and to ensure that, from and after the Effective Time, holders of Parent Options have no rights with respect thereto other than those specifically provided in this *Section 5.5(d)*.

(e) At the Effective Time, each Parent Warrant that is outstanding and unexercised immediately prior to the Effective Time, shall survive the Closing and remain outstanding in accordance with its terms.

5.6 ***Employee Benefits***.

(a) Following the Closing, the Company Benefit Plans shall remain in full force and effect and shall not be terminated or discontinued in connection with or following the Closing.

(b) The provisions of this *Section 5.6* are for the sole benefit of Parent and the Company and no provision of this Agreement shall (i) create any third-party beneficiary or other rights in any Person, including rights in respect of any benefits that may be provided, directly or indirectly, under any Company Benefit Plan or Parent Benefit Plan or rights to continued employment or service with the Company or Parent (or any Subsidiary thereof) or (ii) be treated as an amendment to or other modification to any Company Benefit Plan or Parent Benefit Plan, or shall limit the right of Parent to amend, terminate or otherwise modify any such plans following the Closing.

5.7 ***Indemnification of Officers and Directors***.

(a) From the Effective Time through the sixth anniversary of the date on which the Effective Time occurs, each of Parent and the Surviving Corporation shall indemnify and hold harmless each person who is now, or has been at any time prior to the date hereof, or who becomes prior to the Effective Time, a director, officer, fiduciary or agent of Parent or the Company and their respective Subsidiaries, respectively (the "***D&O Indemnified Parties***"), against all claims, losses, liabilities, damages, judgments, fines and reasonable fees, costs and expenses, including attorneys' fees and disbursements (collectively, "***Costs***"), incurred in connection with any claim, action, suit, proceeding or investigation, whether civil, criminal, administrative or investigative, arising out of or pertaining to the fact that the D&O Indemnified Party is or was a director, officer, fiduciary or agent of Parent or of the Company or their respective Subsidiaries, whether asserted or claimed prior to, at or after the Effective Time, in each case, to the fullest extent permitted under applicable Law. Each D&O Indemnified Party will be entitled to advancement of expenses incurred in the defense of any such claim, action, suit, proceeding or investigation from each of Parent and the Surviving Corporation, jointly and severally, upon receipt by Parent or the Surviving Corporation from the D&O Indemnified Party of a request therefor; *provided* that any such person to whom expenses are advanced provides an undertaking to Parent, to the extent then required by the DGCL, to repay such advances if it is ultimately determined that such person is not entitled to indemnification.

(b) The provisions of Parent's Organizational Documents with respect to indemnification, advancement of expenses and exculpation of present and former directors and officers of Parent that are presently set forth in the certificate of incorporation and bylaws of Parent shall not be amended, modified or repealed for a period of six years from the Effective Time in a manner that would adversely affect the rights thereunder of individuals who, at or prior to the Effective Time, were officers or directors of Parent. The certificate of incorporation and bylaws of the Surviving Corporation shall contain, and Parent shall cause the certificate of incorporation and bylaws of the Surviving Corporation to so contain, provisions no less favorable with respect to indemnification, advancement of expenses and exculpation of present and former directors and officers as those presently set forth in the certificate of incorporation and bylaws of Parent.

(c) From and after the Effective Time, (i) the Surviving Corporation shall fulfill and honor in all respects the obligations of the Company to its D&O Indemnified Parties as of immediately prior to the Closing pursuant to any indemnification provisions under the Company's Organizational Documents and pursuant to any indemnification agreements between the Company and such D&O Indemnified Parties, with respect to claims arising out of matters occurring at or prior to the Effective Time and (ii) Parent shall fulfill and honor in all respects the obligations of Parent to its D&O Indemnified Parties as of immediately prior to the Closing pursuant to any indemnification provisions under Parent's Organizational Documents and pursuant to any indemnification agreements between Parent and such D&O Indemnified Parties, with respect to claims arising out of matters occurring at or prior to the Effective Time.

(d) From and after the Effective Time, Parent shall maintain directors' and officers' liability insurance policies, with an effective date as of the Closing Date, on commercially available terms and conditions and with coverage limits customary for U.S. public companies similarly situated to Parent. In addition, prior to the Effective Time, Parent and the Company shall make equal payments to the applicable insurers in full satisfaction of the premium for a six-year prepaid "tail policy" for the non-cancellable extension of the directors' and officers' liability coverage of Parent's existing directors' and officers' insurance policies for a claims

reporting or discovery period of at least six years from and after the Effective Time with respect to any claim related to any period of time at or prior to the Effective Time (the "***D&O Tail Policy***"). Parent and the Company shall pay their respective portions of the premium for the D&O Tail Policy within five Business Days of Parent's delivery of a written request for the Company's portion of the payment to be made.

(e) From and after the Effective Time, Parent shall pay all expenses, including reasonable attorneys' fees, that are incurred by the persons referred to in this *Section 5.7* in connection with their successful enforcement of the rights provided to such persons in this *Section 5.7*.

(f) The provisions of this *Section 5.7* are intended to be in addition to the rights otherwise available to the current and former officers and directors of Parent and the Company by Law, charter, statute, bylaw or agreement.

(g) In the event Parent or the Surviving Corporation or any of their respective successors or assigns (i) consolidates with or merges into any other Person and shall not be the continuing or surviving corporation or entity of such consolidation or merger, or (ii) transfers all or substantially all of its properties and assets to any Person, then, and in each such case, proper provision shall be made so that the successors and assigns of Parent or the Surviving Corporation, as the case may be, shall succeed to the obligations set forth in this *Section 5.7*. Parent shall cause the Surviving Corporation to perform all of the obligations of the Surviving Corporation under this *Section 5.7*.

(h) The provisions of this *Section 5.7* are intended to be for the benefit of, and shall be enforceable by each officer and director entitled to indemnification under this *Section 5.7*, his or her heirs and his or her representatives and are in addition to, and not in substitution for, any other rights to indemnification or contribution that any such Person may have by contract or otherwise.

5.8 ***Additional Agreements***. The Parties shall use commercially reasonable efforts to cause to be taken all actions necessary to consummate the Contemplated Transactions. Without limiting the generality of the foregoing, each Party: (a) shall make all filings and other submissions (if any) and give all notices (if any) required to be made and given by such Party in connection with the Contemplated Transactions; (b) shall use commercially reasonable efforts to obtain each Consent (if any) reasonably required to be obtained (pursuant to any applicable Law or Contract, or otherwise) by such Party in connection with the Contemplated Transactions or for such Contract (with respect to Contracts set forth in ***Schedule 5.8***) to remain in full force and effect; (c) shall use commercially reasonable efforts to lift any injunction prohibiting, or any other legal bar to, the Contemplated Transactions; and (d) shall use commercially reasonable efforts to satisfy the conditions precedent to the consummation of this Agreement.

5.9 ***Disclosure***. The initial press release relating to this Agreement shall be a joint press release issued by the Company and Parent and thereafter Parent and the Company shall consult with each other before issuing any further press release(s) or otherwise making any public statement or making any announcement to Parent Associates or Company Associates (to the extent not previously issued or made in accordance with this Agreement) with respect to the Contemplated Transactions and shall not issue any such press release, public statement or announcement to Parent Associates or Company Associates without the other Party's written consent (which shall not be unreasonably withheld, conditioned or delayed). Notwithstanding the foregoing: (a) each Party may, without such consultation or consent, make any public statement in response to questions from the press, analysts, investors or those attending industry conferences, make internal announcements to employees and make disclosures in Parent SEC Documents, so long as such statements are consistent with previous press releases, public disclosures or public

statements made jointly by the Parties (or individually, if approved by the other Parties); (b) a Party may, without the prior consent of the other Parties but subject to giving advance notice to the other Party, issue any such press release or make any such public announcement or statement as may be required by any Law; and (c) a Party need not consult with the other Parties in connection with such portion of any press release, public statement or filing to be issued or made pursuant to *Section 5.3(e)* or with respect to any Acquisition Proposal, Parent Board Adverse Recommendation Change or Company Board Adverse Recommendation, as applicable, or with respect to Parent only, pursuant to *Section 5.3(f)*.

5.10 ***Listing***. Parent shall use its commercially reasonable efforts to (a) to maintain its existing listing on Nasdaq until the effective Time and to obtain approval of the listing of the combined corporation on Nasdaq, (b) to the extent required by the rules and regulations of Nasdaq, prepare and submit to Nasdaq a notification form for the listing of the shares of Parent Common Stock to be issued in connection with the Contemplated Transactions, and to cause such shares to be approved for listing (subject to official notice of issuance); (c) effect the Reverse Split; and (d) to the extent required by Nasdaq Marketplace Rule 5110, file an initial listing application for the Parent Common Stock on Nasdaq (the "***Nasdaq Listing Application***") and to cause such Nasdaq Listing Application to be conditionally approved prior to the Effective Time. The Parties will use commercially reasonable efforts to coordinate with respect to compliance with Nasdaq rules and regulations. Each Party will promptly inform the other Party of all verbal or written communications between Nasdaq and such Party or its representatives. The Company and Parent each agree to pay fifty percent (50%) of all Nasdaq fees associated with the Nasdaq Listing Application (the "***Nasdaq Fees***"). The Company will cooperate with Parent as reasonably requested by Parent with respect to the Nasdaq Listing Application and promptly furnish to Parent all information concerning the Company and its stockholders that may be required or reasonably requested in connection with any action contemplated by this *Section 5.10*.

5.11 ***Tax Matters***.

(a) For United States federal income Tax purposes, (i) the Parties intend that the Merger qualify as either a tax-free contribution pursuant to Section 351 of the Code or a "reorganization" within the meaning of Section 368(a) of the Code (the "***Intended Tax Treatment***"), and (ii) this Agreement is intended to be, and is hereby adopted as, a "plan of reorganization" for purposes of Section 354 and 361 of the Code and Treasury Regulations Section 1.368-2(g) and 1.368-3(a), to which Parent, Merger Sub and the Company are parties under Section 368(b) of the Code.

(b) The Parties shall use their respective reasonable best efforts to cause the Merger to qualify, and will not take any action or cause any action to be taken which action would reasonably be expected to prevent the Merger from qualifying, for the Intended Tax Treatment.

(c) Each of Parent and Company shall use its commercially reasonable efforts to deliver to Honigman LLP ("***Parent Tax Counsel***") and Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. (the "***Company Tax Counsel***"), as applicable, "Tax Representation Letters," dated as of the Closing Date and the date of the opinions of Parent Tax Counsel and Company Tax Counsel described in *Section 5.11(e)* and signed by an officer of Parent and Company, respectively, containing representations of Parent and Merger Sub or Company, as applicable, in each case, as shall be reasonably necessary or appropriate to enable Company Tax Counsel to render the opinion described in *Section 5.11(d)* and Parent Tax Counsel and Company Tax Counsel to render the opinions described in *Section 5.11(e)*.

(d) The Company shall use its commercially reasonable efforts to obtain a tax opinion of Company Tax Counsel dated as of the Closing and issued to the Company to the effect that

the Merger shall qualify for the Intended Tax Treatment. In rendering its opinion, Company Tax Counsel may require and rely upon (and may incorporate by reference) reasonable and customary representations and covenants, including the applicable Tax Representation Letters described in *Section 5.11(c)* of this Agreement from Parent and Company.

(e) Each of Parent and the Company shall use commercially reasonable efforts to obtain an opinion of Parent Tax Counsel and Company Tax Counsel, respectively, satisfying the requirements of Item 601 of Regulation S-K under the Securities Act (i) dated as of a date as reasonably requested by Parent and Company, as applicable, prior to the Registration Statement being declared effective, and (ii) satisfying the requirements of Item 601 of Regulation S-K under the Securities Act. In rendering their respective opinions in this *Section 5.11(e)* , the Tax Counsels may require and rely upon (and may incorporate by reference) reasonable and customary representations and covenants, including the applicable Tax Representation Letters described in *Section 5.11(c)* of this Agreement.

5.12 ***Legends***. Parent shall be entitled to place appropriate legends on the book entries and/or certificates evidencing any shares of Parent Common Stock to be received in the Merger by equity holders of the Company who may be considered "affiliates" of Parent for purposes of Rules 144 and 145 under the Securities Act reflecting the restrictions set forth in Rules 144 and 145 and to issue appropriate stop transfer instructions to the transfer agent for Parent Common Stock.

5.13 ***Directors and Officers***. The Parties shall use commercially reasonable efforts and take all necessary action so that immediately after the Effective Time, (a) the Parent Board is composed of 6 members, with one such member to be designated by Parent, and 5 such members to be designated by the Company, such designees to be provided prior to the filing of the Registration Statement and (b) executive officers to be identified by the Company prior to the filing of the Registration Statement, are appointed to the applicable positions of Parent and the Surviving Corporation, in each case to serve in such positions effective as of the Effective Time until successors are duly elected or appointed and qualified in accordance with applicable Law. Prior to the Company sending the Information Statement, all members of the Parent Board and officers of Parent who will no longer be members of the Parent Board or officers of Parent shall provide executd resignation letters to be effective immediately after the Effective Time.

5.14 ***Termination of Certain Agreements and Rights***. The Company shall cause any Investor Agreements (including the Stockholders' Agreement but excluding the Company Stockholder Support Agreements and Company Lock-Up Agreements) to be terminated effective as of the Effective Time, without any liability being imposed on the part of Parent or the Surviving Corporation.

5.15 ***Section 16 Matters***. Prior to the Effective Time, Parent and the Company shall take all such steps as may be required (to the extent permitted under applicable Laws) to cause any acquisitions of Parent Common Stock, restricted stock awards to acquire Parent Common Stock and any options to purchase Parent Common Stock in connection with the Contemplated Transactions, by each individual who is reasonably expected to become subject to the reporting requirements of Section 16(a) of the Exchange Act with respect to Parent, to be exempt under Rule 16b-3 promulgated under the Exchange Act. The Company shall furnish the following information to Parent for each individual who, immediately after the Effective Time, will become subject to the reporting requirements of Section 16(a) of the Exchange Act with respect to Parent: (a) the number of shares of Company Capital Stock owned by such individual and expected to be exchanged for shares of Parent Common Stock pursuant to the Merger, and (b) the number of other derivative securities (if any) with respect to Company Capital Stock owned by such individual and expected to be converted into shares of Parent Common Stock, restricted stock awards to

acquire Parent Common Stock or derivative securities with respect to Parent Common Stock in connection with the Merger.

5.16 ***Cooperation***. Each Party shall cooperate reasonably with the other Party and shall provide the other Party with such assistance as may be reasonably requested for the purpose of facilitating the performance by each Party of its respective obligations under this Agreement and to enable the combined entity to continue to meet its obligations following the Effective Time.

5.17 ***Allocation Certificates***.

(a) The Company will prepare and deliver to Parent at least five Business Days prior to the Closing Date a certificate signed by the Chief Financial Officer of the Company in a form reasonably acceptable to Parent setting forth (as of immediately prior to the Effective Time, after giving effect to the Pre-Closing Financing, Preferred Stock Conversion, Convertible Note Conversion and Stock Split) (i) each holder of Company Common Stock and Company Options; (ii) such holder's name and address; (iii) the number of shares of Company Common Stock held and/or underlying the Company Options as of the immediately prior to the Effective Time for each such holder and the per share exercise price of each Company Option; and (iv) the number of shares of Parent Common Stock to be issued to such holder, or to underlie any Parent Option to be issued to such holder, pursuant to this Agreement in respect of the Company Common Stock or Company Options held by such holder as of immediately prior to the Effective Time (the "***Allocation Certificate***").

(b) Parent will prepare and deliver to the Company at least five Business Days prior to the Closing Date a certificate signed by the Chief Financial Officer of Parent (or, if there is no Chief Financial Officer, the principal accounting officer for Parent) in a form reasonably acceptable to the Company, setting forth, as of immediately prior to the Effective Time, the number of Parent Outstanding Shares and each component thereof (broken down by outstanding shares of Parent Common Stock, Parent Options, Parent Warrants and other relevant securities) (the "***Parent Outstanding Shares Certificate***").

5.18 ***Takeover Statutes***. If any Takeover Statute is or may become applicable to the Contemplated Transactions, each of the Company, the Company Board, Parent and the Parent Board, as applicable, shall grant such approvals and take such actions as are necessary so that the Contemplated Transactions may be consummated as promptly as practicable on the terms contemplated by this Agreement and otherwise act to eliminate or minimize the effects of such statute or regulation on the Contemplated Transactions.

5.19 ***Stockholder Litigation***. Each Party shall promptly notify the other Party in writing, and conduct and control the settlement and defense, of any stockholder litigation brought or threatened against such Party or any of its directors and officers relating to or challenging this Agreement or the consummation of the Contemplated Transactions; *provided* that prior to Closing, such Party shall (a) consult with the other Party with respect to any such stockholder litigation and in good faith take any comments of the other Party into account with respect to such stockholder litigation, and (b) keep the other Party reasonably apprised of any material developments in connection with, any such stockholder litigation.

5.20 ***Company Preferred Stock, Company Convertible Note Conversion and the Stock Split***. The Company shall take all necessary action to effect (i) the conversion of the Company Preferred Stock into Company Common Stock immediately prior to and conditioned upon the occurrence of the Effective Time (the "***Preferred Stock Conversion***"), (ii) the conversion of the Company Convertible Notes into Company Common Stock which shall occur not later than immediately prior to the Effective Time (the "***Convertible Note Conversion***"), and (iii) Stock Split.

5.21 ***Company Financial Statements***. As promptly as reasonably practicable following the date of this Agreement and no later than 30 days after the date of this Agreement, (i) the Company will furnish to Parent audited financial statements for the fiscal years ended December 31, 2017 and 2018 for inclusion in the Proxy Statement and the Registration Statement (the "***Company Audited Financial Statements***") and (ii) the Company will furnish to Parent unaudited interim financial statements for each interim period completed prior to Closing that would be required to be included in the Registration Statement or any periodic report due prior to the Closing if the Company were subject to the periodic reporting requirements under the Securities Act or the Exchange Act (the "***Company Interim Financial Statements***"). Each of the Company Audited Financial Statements and the Company Interim Financial Statements will be suitable for inclusion in the Proxy Statement and the Registration Statement and prepared in accordance with GAAP as applied on a consistent basis during the periods involved (except in each case as described in the notes thereto) and on that basis will present fairly, in all material respects, the financial position and the results of operations, changes in stockholders' equity, and cash flows of the Company as of the dates of and for the periods referred to in the Company Audited Financial Statements or the Company Interim Financial Statements, as the case may be.

5.22 ***Permitted Disposition***. Prior to Closing, without seeking or obtaining Company's prior written consent but upon reasonable prior written notice, Parent shall be permitted to sell or license, through one or more transactions, any or all of its assets related to its product candidate Gemcabene (also known as CI-1027) ("***Gemcabene***"). To the extent that any such sale or license of any such assets (a "***Permitted Disposition***") results in obligations, whether contingent or otherwise, to Parent after the Closing, the terms of such sale or license shall be reasonably acceptable to the Company, in its sole discretion. The proceeds of any such Permitted Disposition shall be included in the calculation of Parent Cash Amount provided by Parent pursuant to *Section 1.12*, beginning with the next monthly calculation required under *Section 1.12(f)* following the consummation of the Permitted Disposition.

5.23 ***2019 Equity Incentive Plan***. The Parties shall use commercially reasonable efforts and take all necessary action to provide for the adoption, at the Parent Stockholders' Meeting, of an equity incentive plan in form and substance mutually agreed to by Parent and the Company.

**Section 6. CONDITIONS PRECEDENT TO OBLIGATIONS OF EACH PARTY**

The obligations of each Party to effect the Merger and otherwise consummate the Contemplated Transactions to be consummated at the Closing are subject to the satisfaction or, to the extent permitted by applicable Law, the written waiver by each of the Parties, at or prior to the Closing, of each of the following conditions:

6.1 ***Effectiveness of Registration Statement***. The Registration Statement shall have become effective in accordance with the provisions of the Securities Act, and shall not be subject to any stop order or proceeding (or threatened proceeding by the SEC) seeking a stop order with respect to the Registration Statement that has not been withdrawn.

6.2 ***No Restraints***. No temporary restraining order, preliminary or permanent injunction or other order preventing the consummation of the Contemplated Transactions shall have been issued by any court of competent jurisdiction or other Governmental Body of competent jurisdiction and remain in effect and there shall not be any Law which has the effect of making the consummation of the Contemplated Transactions illegal.

6.3 ***Stockholder Approval***. (a) Parent shall have obtained the Required Parent Stockholder Vote with regard to the proposals in *Sections 5.3(a)(i)* and *5.3(a)(iii)*, and (b) the Company shall have obtained the Required Company Stockholder Vote with regard to the Company Stockholder Matters and the Company Series A Stockholder Matters.

6.4 ***Listing***. The shares of Parent Common Stock to be issued in the Merger pursuant to this Agreement shall have been approved for listing (subject to official notice of issuance) on Nasdaq as of the Closing, the approval of the listing of additional shares of Parent Common Stock on Nasdaq shall have been obtained, and the shares of Parent Common Stock outstanding prior to the Effective Time of the Merger shall have been continually listed on Nasdaq as of and from the date of this Agreement through the Closing Date.

**Section 7. ADDITIONAL CONDITIONS PRECEDENT TO OBLIGATIONS OF PARENT AND MERGER SUB**

The obligations of Parent and Merger Sub to effect the Merger and otherwise consummate the transactions to be consummated at the Closing are subject to the satisfaction or the written waiver by Parent, at or prior to the Closing, of each of the following conditions:

7.1 ***Accuracy of Representations***. The Company Fundamental Representations shall have been true and correct in all material respects as of the date of this Agreement and shall be true and correct in all material respects on and as of the Closing Date with the same force and effect as if made on and as of such date (except to the extent such representations and warranties are specifically made as of a particular date, in which case such representations and warranties shall be true and correct in all material respects as of such date). The representations and warranties of the Company contained in this Agreement (other than the Company Fundamental Representations) shall have been true and correct as of the date of this Agreement and shall be true and correct on and as of the Closing Date with the same force and effect as if made on the Closing Date, except (a) in each case, or in the aggregate, where the failure to be true and correct would not reasonably be expected to have a Company Material Adverse Effect (without giving effect to any references therein to any Company Material Adverse Effect or other materiality qualifications), or (b) for those representations and warranties which address matters only as of a particular date (which representations shall have been true and correct, subject to the qualifications as set forth in the preceding clause (a), as of such particular date) (it being understood that, for purposes of determining the accuracy of such representations and warranties, any update of or modification to the Company Disclosure Schedule made or purported to have been made after the date of this Agreement shall be disregarded).

7.2 ***Performance of Covenants***. The Company shall have performed or complied with in all material respects all agreements and covenants required to be performed or complied with by it under this Agreement at or prior to the Effective Time.

7.3 ***Documents***. Parent shall have received the following documents, each of which shall be in full force and effect:

(a) a certificate executed by the Chief Executive Officer or Chief Financial Officer of the Company certifying (i) that the conditions set forth in *Sections 7.1*, *7.2*, *7.5* and *7.6* have been duly satisfied and (ii) that the information set forth in the Allocation Certificate delivered by the Company in accordance with *Section 5.17* is true and accurate in all respects as of the Closing Date;

(b) a written resignation, in a form reasonably satisfactory to Parent, dated as of the Closing Date and effective as of the Closing, executed by each of the officers and directors of the Company who will not be an officer or director of Parent and the Surviving Corporation pursuant to *Section 5.13*; and

(c) the Allocation Certificate.

7.4 ***FIRPTA Certificate***. Parent shall have received (i) an original signed statement from the Company that the Company is not, and has not been at any time during the applicable period

specified in Section 897(c)(1)(A)(ii) of the Code, a "United States real property holding corporation," as defined in Section 897(c)(2) of the Code, conforming to the requirements of Treasury Regulations Section 1.1445-2(c)(3) and 1.897-2(h), and (ii) an original signed notice to be delivered to the IRS in accordance with the provisions of Treasury Regulations Section 1.897-2(h)(2), together with written authorization for Parent to deliver such notice to the IRS on behalf of the Company following the Closing, each dated as of the Closing Date, duly executed by an authorized officer of the Company, and in form and substance reasonably acceptable to Parent.

7.5 ***No Company Material Adverse Effect***. Since the date of this Agreement, there shall not have occurred any Company Material Adverse Effect.

7.6 ***Termination of Investor Agreements***. The Investor Agreements shall have been terminated.

7.7 ***Company Lock-Up Agreements***. Parent shall have received the Company Lock-Up Agreements duly executed by each of the Company Signatories and each executive officer and director of the Company who is elected or appointed, as applicable, as an executive officer and director of Parent as of immediately following the Closing, each of which shall be in full force and effect.

7.8 ***Preferred Stock Conversion, Convertible Note Conversion and Stock Split***. The Company has effected the Preferred Stock Conversion, the Convertible Note Conversion and the Stock Split.

7.9 ***Pre-Closing Financing***. The Pre-Closing Financing shall have been consummated, and the Company shall have received all of the proceeds of the Pre-Closing Financing (including, for the avoidance of doubt, the minimum gross proceeds of $24,240,000) prior to the Effective Time on the terms and conditions set forth in the Subscription Agreements.

7.10 ***Company Stockholder Written Consent***. The Company Stockholder Written Consent evidencing the Required Company Stockholder Vote shall be in full force and effect.

**Section 8. ADDITIONAL CONDITIONS PRECEDENT TO OBLIGATION OF THE COMPANY**

The obligations of the Company to effect the Merger and otherwise consummate the transactions to be consummated at the Closing are subject to the satisfaction or the written waiver by the Company, at or prior to the Closing, of each of the following conditions:

8.1 ***Accuracy of Representations***. The Parent Fundamental Representations shall have been true and correct in all material respects as of the date of this Agreement and shall be true and correct in all material respects on and as of the Closing Date with the same force and effect as if made on and as of such date (except to the extent such representations and warranties are specifically made as of a particular date, in which case such representations and warranties shall be true and correct in all material respects as of such date). The representations and warranties of Parent and Merger Sub contained in this Agreement (other than the Parent Fundamental Representations) shall have been true and correct as of the date of this Agreement and shall be true and correct on and as of the Closing Date with the same force and effect as if made on the Closing Date except (a) in each case, or in the aggregate, where the failure to be true and correct would not reasonably be expected to have a Parent Material Adverse Effect (without giving effect to any references therein to any Parent Material Adverse Effect or other materiality qualifications), or (b) for those representations and warranties which address matters only as of a particular date (which representations shall have been true and correct, subject to the qualifications as set forth in the preceding clause (a), as of such particular date) (it being understood that, for purposes of determining the accuracy of such representations and warranties, any update of or modification to

the Parent Disclosure Schedule made or purported to have been made after the date of this Agreement shall be disregarded).

8.2 ***Performance of Covenants***. Parent and Merger Sub shall have performed or complied with in all material respects all of their agreements and covenants required to be performed or complied with by each of them under this Agreement at or prior to the Effective Time.

8.3 ***Documents***. The Company shall have received the following documents, each of which shall be in full force and effect:

(a) a certificate executed by the Chief Executive Officer or Chief Financial Officer of Parent confirming that the conditions set forth in *Sections 8.1*, *8.2*, and *8.4* have been duly satisfied;

(b) the Parent Cash Schedule and a certificate executed by the Chief Financial Officer of Parent (or if there is no Chief Financial Officer, the principal accounting officer for Parent) certifying that the information set forth in the Parent Cash Schedule delivered by Parent in accordance with *Section 1.12* is true and accurate in all respects as of the Closing Date;

(c) the Parent Outstanding Shares Certificate; and

(d) a written resignation, in a form reasonably satisfactory to the Company, dated as of the Closing Date and effective as of the Closing, executed by each of the directors of Parent who are not to continue as directors of Parent after the Closing pursuant to *Section 5.13*.

8.4 ***No Parent Material Adverse Effect***. Since the date of this Agreement, there shall not have occurred any Parent Material Adverse Effect.

8.5 ***Minimum Parent Cash Amount***. The Parent Cash Amount, calculated as of the Anticipated Closing Date, shall not be less than negative three million dollars (–$3,000,000).

8.6 ***Parent Lock-Up Agreements***. The Company shall have received the Parent Lock-Up Agreements duly executed by each of the officers and directors of Parent listed on *Section A* of the Parent Disclosure Schedule, each of which shall be in full force and effect.

8.7 ***Board of Directors and Officers***. Parent shall have taken all actions necessary to cause the Parent Board and the officers of Parent as of the Effective Time, to be constituted as set forth in *Section 5.13*.

**Section 9. TERMINATION**

9.1 ***Termination***. This Agreement may be terminated prior to the Effective Time (whether before or after adoption of this Agreement by the Company's stockholders and whether before or after approval of the Parent Stockholder Matters by Parent's stockholders, unless otherwise specified below):

(a) by mutual written consent of Parent and the Company;

(b) by either Parent or the Company if the Contemplated Transactions shall not have been consummated by December 24, 2019 (subject to possible extension as provided in this *Section 9.1(b)*, the "***End Date***"); *provided*, *however*, that the right to terminate this Agreement under this *Section 9.1(b)* shall not be available to the Company, on the one hand, or to Parent, on the other hand, if such Party's action or failure to act has been a principal cause of the failure of the Contemplated Transactions to occur on or before the End Date and such action or failure to act constitutes a breach of this Agreement, *provided*, *further*, *however*, that, in the event that a request for additional information has been made by any Governmental Body, or in the event that the SEC has not declared effective under the Securities Act the Registration Statement by the date which is 60 days prior to the End Date, then either the

Company or Parent shall be entitled to extend the End Date for an additional 60 days by written notice to the other the Party;

(c) by either Parent or the Company if a court of competent jurisdiction or other Governmental Body shall have issued a final and nonappealable order, decree or ruling, or shall have taken any other action, having the effect of permanently restraining, enjoining or otherwise prohibiting the Contemplated Transactions;

(d) by Parent if the Company Stockholder Written Consent executed by each Company Signatory shall not have been obtained within five (5) Business Days of the Registration Statement becoming effective in accordance with the provisions of the Securities Act; *provided*, *however*, that once the Company Stockholder Written Consent has been obtained, Parent may not terminate this Agreement pursuant to this *Section 9.1(d)*;

(e) by either Parent or the Company if (i) the Parent Stockholders' Meeting (including any adjournments and postponements thereof) shall have been held and completed and Parent's stockholders shall have taken a final vote on the Parent Stockholder Matters and (ii) the Parent Stockholder Matters shall not have been approved at the Parent Stockholders' Meeting (or at any adjournment or postponement thereof) by the Required Parent Stockholder Vote; *provided*, *however*, that the right to terminate this Agreement pursuant to this *Section 9.1(e)* shall not be available to Parent if the failure to obtain the Required Parent Stockholder Vote shall have been directly caused by the action or failure to act of Parent and such action or failure to act constitutes a material breach by Parent of this Agreement;

(f) by the Company (at any time prior to the approval of the Parent Stockholder Matters by the Required Parent Stockholder Vote) if a Parent Triggering Event shall have occurred;

(g) by Parent (at any time prior to the Required Company Stockholder Vote being obtained) if a Company Triggering Event shall have occurred;

(h) by the Company, upon a breach of any representation, warranty, covenant or agreement set forth in this Agreement by Parent or Merger Sub or if any representation or warranty of Parent or Merger Sub shall have become inaccurate, in either case, such that the conditions set forth in *Section 8.1* or *Section 8.2* would not be satisfied as of the time of such breach or as of the time such representation or warranty shall have become inaccurate; *provided* that the Company is not then in material breach of any representation, warranty, covenant or agreement under this Agreement; *provided*, *further*, that if such inaccuracy in Parent's or Merger Sub's representations and warranties or breach by Parent or Merger Sub is curable by the End Date by Parent or Merger Sub, then this Agreement shall not terminate pursuant to this *Section 9.1(h)* as a result of such particular breach or inaccuracy until the expiration of a 15-day period commencing upon delivery of written notice from the Company to Parent or Merger Sub of such breach or inaccuracy and its intention to terminate pursuant to this *Section 9.1(h)* (it being understood that this Agreement shall not terminate pursuant to this *Section 9.1(h)* as a result of such particular breach or inaccuracy if such breach by Parent or Merger Sub is cured prior to such termination becoming effective);

(i) by Parent, upon a breach of any representation, warranty, covenant or agreement set forth in this Agreement by the Company or if any representation or warranty of the Company shall have become inaccurate, in either case, such that the conditions set forth in *Section 7.1* or *Section 7.2* would not be satisfied as of the time of such breach or as of the time such representation or warranty shall have become inaccurate; *provided* that Parent is not then in material breach of any representation, warranty, covenant or agreement under this Agreement; *provided*, *further*, that if such inaccuracy in the Company's representations and warranties or

breach by the Company is curable by the End Date by the Company then this Agreement shall not terminate pursuant to this *Section 9.1(i)* as a result of such particular breach or inaccuracy until the expiration of a 15-day period commencing upon delivery of written notice from Parent to the Company of such breach or inaccuracy and its intention to terminate pursuant to this *Section 9.1(i)* (it being understood that this Agreement shall not terminate pursuant to this *Section 9.1(i)* as a result of such particular breach or inaccuracy if such breach by the Company is cured prior to such termination becoming effective);

(j) by Parent, at any time, if (i) all conditions in *Sections 6* and *8* have been satisfied (other than those conditions that by their nature are to be satisfied by actions taken at the Closing), and remain so satisfied and (ii) Parent irrevocably confirms by written notice to the Company that (A) each of the conditions in *Section 7*, other than the condition set forth in *Section 7.9* has been satisfied or that Parent is willing to waive any such conditions that have not been satisfied (other than those conditions that by their nature are to be satisfied by actions taken at the Closing) and (B) it is prepared to consummate the Closing upon satisfaction of the condition set forth in *Section 7.9* (*i.e.*, consummation of the Pre-Closing Financing); *provided*, that this Agreement shall not terminate pursuant to this *Section 9.1(j)* unless the condition set forth in *Section 7.9* has not been satisfied within fifteen (15) calendar days after delivery of the written notice from Parent to the Company pursuant to clause (ii) of this *Section 9.1(j)*; or

(k) by Parent, at any time prior to the approval of the issuance of Parent Common Stock in the Merger by the Required Parent Stockholder Vote, upon Parent entering into a definitive agreement to effect a Superior Offer (a "***Permitted Alternative Agreement***"); *provided*, *however*, that Parent shall not enter into any Permitted Alternative Agreement unless (i) Parent shall have complied with its obligations under *Section 4.4*, (ii) the Parent Board shall have determined in good faith, after consultation with its outside legal counsel, that the failure to enter into such Permitted Alternative Agreement would result in a breach of its fiduciary duties under applicable Law, and (iii) Parent shall concurrently pay to the Company the Company Termination Fee in accordance with *Section 9.3(e)*.

9.2 ***Effect of Termination***. In the event of the termination of this Agreement as provided in *Section 9.1*, this Agreement shall be of no further force or effect; *provided*, *however*, that (a) this *Section 9.2*, *Section 5.9*, *Section 9.3*, *Section 10* and the definitions of the defined terms in such Sections shall survive the termination of this Agreement and shall remain in full force and effect, and (b) the termination of this Agreement and the provisions of *Section 9.3* shall not relieve any Party of any liability for common law fraud or for any Willful Breach of any representation, warranty, covenant, obligation or other provision contained in this Agreement. For purposes of this Agreement, the term "***Willful Breach***" means a deliberate act or a deliberate failure to act, taken or not taken with the actual knowledge that such act or failure to act would result in or constitute a material breach of this Agreement, regardless of whether breaching was the object of the act or failure to act.

9.3 ***Expenses; Termination Fees***.

(a) Except as set forth in this *Section 9.3* and *Section 5.10*, all fees and expenses incurred in connection with this Agreement and the Contemplated Transactions shall be paid by the Party incurring such expenses, whether or not the Merger is consummated; *provided*, that the Company and Parent shall share equally all fees and expenses incurred in relation to the printing and filing with the SEC of the Registration Statement or Proxy Statement and any amendments and supplements thereto and paid to a financial printer or the SEC.

(b) If (i) this Agreement is terminated by (A) Parent or the Company pursuant to *Section 9.1(b)* or *Section 9.1(e)* or (B) the Company pursuant to *Section 9.1(h)*, (ii) an

Acquisition Proposal with respect to Parent shall have been publicly announced or disclosed or otherwise communicated to Parent or the Parent Board after the date of this Agreement but prior to the termination of this Agreement and (iii) within twelve months after the date of such termination, Parent enters into a definitive agreement for any Subsequent Transaction or consummates any Subsequent Transaction, then Parent shall pay to the Company, upon such entry into a definitive agreement for or consummation of a Subsequent Transaction, a nonrefundable fee in an amount equal to $1,000,000 (the "***Company Termination Fee***"), less any amount actually paid to the Company pursuant to *Section 9.3(f)*.

(c) If (i) this Agreement is terminated by (A) Parent or the Company pursuant to *Section 9.1(b)* or (B) Parent pursuant to *Section 9.1(d)* or *Section 9.1(i)*, (ii) an Acquisition Proposal with respect to the Company shall have been publicly announced or disclosed or otherwise communicated to the Company or the Company Board after the date of this Agreement but prior to the termination of this Agreement and (iii) within twelve months after the date of such termination, the Company enters into a definitive agreement for a Subsequent Transaction or consummates any Subsequent Transaction, then the Company shall pay to Parent, upon such entry into a definitive agreement for or consummation of a Subsequent Transaction, a nonrefundable fee in an amount equal to $1,000,000 (the "***Parent Termination Fee***"), less any amount actually paid to Parent pursuant to *Section 9.3(g)*.

(d) If this Agreement is terminated by Parent pursuant to *Section 9.1(g)*, then the Company shall pay to Parent the Parent Termination Fee within ten (10) Business Days of such termination.

(e) If this Agreement is terminated by the Company pursuant to *Section 9.1(f)* or by Parent pursuant to *Section 9.1(k)*, then Parent shall pay to Company the Company Termination Fee within five (5) Business Days of such termination.

(f) If (A) this Agreement is terminated by the Company pursuant to *Section 9.1(h)*, or (B) the Company fails to consummate the Contemplated Transaction solely as a result of a Parent Material Adverse Effect as set forth in *Section 8.4* (provided, that at such time all of the other conditions precedent to Parent's obligation to close set forth in *Sections 6* and *7* have been satisfied by the Company, are capable of being satisfied by the Company or have been waived by Parent), then Parent shall reimburse the Company for all reasonable fees and expenses incurred by the Company in connection with this Agreement and the transactions contemplated hereby, including: (i) all fees and expenses incurred in connection with the preparation, printing and filing, as applicable, of the Registration Statement or Proxy Statement (including any preliminary materials related thereto and all amendments and supplements thereto, as well as any financial statements and schedules thereto), (ii) reasonable legal and auditor fees and expenses; and (iii) all fees and expenses incurred in connection with the preparation and filing under any filing requirement of any Governmental Body applicable to this Agreement and the transactions contemplated hereby; *provided*, *however*, the fees and expenses for clauses (i) through (iii) above (collectively referred to as the "***Third Party Expenses***") shall be capped at a maximum of $500,000 for such Third Party Expenses.

(g) If (A) this Agreement is terminated by Parent pursuant to *Section 9.1(i)* or *Section 9.1(j)*, or (B) Parent fails to consummate the Contemplated Transaction solely as a result of a Company Material Adverse Effect as set forth in *Section 7.5* (provided, that at such time all of the other conditions precedent to Parent's obligation to close set forth in *Sections 6* and *8* have been satisfied by Parent, are capable of being satisfied by Parent or have been waived by the Company),then the Company shall reimburse Parent for all Third Party Expenses incurred by Parent up to a maximum of $500,000.

(h) Any Company Termination Fee, Parent Termination Fee or reimbursement of Third Party Expenses due under this *Section 9.3* shall be paid by wire transfer of same day funds. If a Party fails to pay when due any amount payable by it under this *Section 9.3*, then such Party shall (i) reimburse the other Party for reasonable costs and expenses (including reasonable fees and disbursements of counsel) incurred by it in connection with the collection of such overdue amount and the enforcement by such Party of its rights under this *Section 9.*3, and (ii) pay to the other Party interest on such overdue amount (for the period commencing as of the date such overdue amount was originally required to be paid and ending on the date such overdue amount is actually paid to the Company in full) at a rate per annum equal to the "prime rate" (as published in *The Wall Street Journal* or any successor thereto) in effect on the date such overdue amount was originally required to be paid.

(i) The Parties agree that, (i) subject to *Section 9.2*, payment of the Company Termination Fee shall, in the circumstances in which it is owed in accordance with the terms of this Agreement, constitute the sole and exclusive remedy of the Company following the termination of this Agreement, it being understood that in no event shall Parent be required to pay the amounts payable pursuant to this *Section 9.3* on more than one occasion and (ii) following payment of the Company Termination Fee (A) Parent shall have no further liability to the Company in connection with or arising out of this Agreement or the termination thereof, any breach of this Agreement by Parent giving rise to such termination, or the failure of the Contemplated Transactions to be consummated, (B) neither the Company nor any of its Affiliates shall be entitled to bring or maintain any other claim, action or proceeding against Parent or Merger Sub or seek to obtain any recovery, judgment or damages of any kind against such Parties (or any partner, member, stockholder, director, officer, employee, Subsidiary, Affiliate, agent or other Representative of such Parties) in connection with or arising out of this Agreement or the termination thereof, any breach by any such Parties giving rise to such termination or the failure of the Contemplated Transactions to be consummated and (C) the Company and its Affiliates shall be precluded from any other remedy against Parent, Merger Sub and their respective Affiliates, at law or in equity or otherwise, in connection with or arising out of this Agreement or the termination thereof, any breach by such Party giving rise to such termination or the failure of the Contemplated Transactions to be consummated; *provided, however*, that nothing in this *Section 9.3(i)* shall limit the rights of the Company under *Section 10.10* or with respect to claims of common law fraud or Willful Breach of this Agreement by either Party prior to the date of termination.

(j) The Parties agree that, (i) subject to *Section 9.2*, payment of the Parent Termination Fee shall, in the circumstances in which it is owed in accordance with the terms of this Agreement, constitute the sole and exclusive remedy of Parent following the termination of this Agreement, it being understood that in no event shall the Company be required to pay the amounts payable pursuant to this *Section 9.3* on more than one occasion and (ii) following payment of the Parent Termination Fee (A) the Company shall have no further liability to Parent in connection with or arising out of this Agreement or the termination thereof, any breach of this Agreement by the Company giving rise to such termination, or the failure of the Contemplated Transactions to be consummated, (B) neither Parent nor any of its Affiliates shall be entitled to bring or maintain any other claim, action or proceeding against the Company or seek to obtain any recovery, judgment or damages of any kind against such Parties (or any partner, member, stockholder, director, officer, employee, Subsidiary, Affiliate, agent or other Representative of such Parties) in connection with or arising out of this Agreement or the termination thereof, any breach by any such Parties giving rise to such termination or the failure of the Contemplated Transactions to be consummated and (C) Parent and its Affiliates shall be precluded from any other remedy against the Company

and its Affiliates, at law or in equity or otherwise, in connection with or arising out of this Agreement or the termination thereof, any breach by such Party giving rise to such termination or the failure of the Contemplated Transactions to be consummated; *provided, however*, that nothing in this *Section 9.3(j)* shall limit the rights of Parent and Merger Sub under *Section 10.10* or with respect to claims of common law fraud or Willful Breach of this Agreement by either Party prior to the date of termination.

(k) Each of the Parties acknowledges that (i) the agreements contained in this *Section 9.3* are an integral part of the Contemplated Transactions, (ii) without these agreements, the Parties would not enter into this Agreement and (iii) any amount payable pursuant to this *Section 9.3* is not a penalty, but rather is liquidated damages in a reasonable amount that will compensate the Company in the circumstances in which such amount is payable.

**Section 10. MISCELLANEOUS PROVISIONS**

10.1 ***Non-Survival of Representations and Warranties***. The representations and warranties of the Company, Parent and Merger Sub contained in this Agreement or any certificate or instrument delivered pursuant to this Agreement shall terminate at the Effective Time, and only the covenants that by their terms survive the Effective Time and this *Section 10* shall survive the Effective Time.

10.2 ***Amendment***. This Agreement may be amended with the approval of the respective boards of directors of the Company, Merger Sub and Parent at any time (whether before or after the adoption and approval of this Agreement by the Company's stockholders or before or after obtaining the Required Parent Stockholder Vote); *provided, however*, that after any such approval of this Agreement by a Party's stockholders, no amendment shall be made which by Law requires further approval of such stockholders without the further approval of such stockholders. This Agreement may not be amended except by an instrument in writing signed on behalf of each of the Company, Merger Sub and Parent.

10.3 ***Waiver***.

(a) No failure on the part of any Party to exercise any power, right, privilege or remedy under this Agreement, and no delay on the part of any Party in exercising any power, right, privilege or remedy under this Agreement, shall operate as a waiver of such power, right, privilege or remedy; and no single or partial exercise of any such power, right, privilege or remedy shall preclude any other or further exercise thereof or of any other power, right, privilege or remedy.

(b) No Party shall be deemed to have waived any claim arising out of this Agreement, or any power, right, privilege or remedy under this Agreement, unless the waiver of such claim, power, right, privilege or remedy is expressly set forth in a written instrument duly executed and delivered on behalf of such Party and any such waiver shall not be applicable or have any effect except in the specific instance in which it is given.

10.4 ***Entire Agreement; Counterparts; Exchanges by Electronic Transmission***. This Agreement and the other agreements referred to in this Agreement constitute the entire agreement and supersede all prior agreements and understandings, both written and oral, among or between any of the Parties with respect to the subject matter hereof and thereof; *provided, however*, that the Confidentiality Agreement shall not be superseded and shall remain in full force and effect in accordance with its terms. This Agreement may be executed in several counterparts, each of which shall be deemed an original and all of which shall constitute one and the same instrument. The exchange of a fully executed Agreement (in counterparts or otherwise) by all Parties by electronic transmission in .PDF format shall be sufficient to bind the Parties to the terms and conditions of this Agreement.

10.5 ***Applicable Law; Jurisdiction***. This Agreement and all claims and causes of action hereunder shall be governed by, and construed in accordance with, the Laws of the State of Delaware, regardless of the Laws that might otherwise govern under applicable principles of conflicts of laws. In any action or proceeding between any of the Parties arising out of or relating to this Agreement or any of the Contemplated Transactions, each of the Parties: (a) irrevocably and unconditionally consents and submits to the exclusive jurisdiction and venue of the Court of Chancery of the State of Delaware or, to the extent such court does not have subject matter jurisdiction, the United States District Court for the District of Delaware or, to the extent that neither of the foregoing courts has jurisdiction, the Superior Court of the State of Delaware; (b) agrees that all claims in respect of such action or proceeding shall be heard and determined exclusively in accordance with clause (a) of this *Section 10.5*; (c) waives any objection to laying venue in any such action or proceeding in such courts; (d) waives any objection that such courts are an inconvenient forum or do not have jurisdiction over any Party; (e) agrees that service of process upon such Party in any such action or proceeding shall be effective if notice is given in accordance with *Section 10.7* of this Agreement; and (f) irrevocably and unconditionally waives the right to trial by jury.

10.6 ***Assignability***. This Agreement shall be binding upon, and shall be enforceable by and inure solely to the benefit of, the Parties and their respective successors and permitted assigns; *provided*, *however*, that neither this Agreement nor any of a Party's rights or obligations hereunder may be assigned or delegated by such Party without the prior written consent of the other Party, and any attempted assignment or delegation of this Agreement or any of such rights or obligations by such Party without the other Party's prior written consent shall be void and of no effect.

10.7 ***Notices***. All notices and other communications hereunder shall be in writing and shall be deemed to have been duly delivered and received hereunder (a) one Business Day after being sent for next Business Day delivery, fees prepaid, via a reputable international overnight courier service, (b) upon delivery in the case of delivery by hand, or (c) on the date delivered in the place of delivery if sent by email (with a written or electronic confirmation of delivery) prior to 5:00 p.m. Eastern Time, otherwise on the next succeeding Business Day, in each case to the intended recipient as set forth below:

if to Parent or Merger Sub:

Gemphire Therapeutics Inc.
17199 N. Laurel Park Drive,
Suite 401
Livonia, MI 48152
Attention: President
Email:

with a copy to (which shall not constitute notice):

Honigman LLP
650 Trade Centre Way
Suite 200

Kalamazoo, MI 49002-0402
Attention: Phillip D. Torrence
Email:

if to the Company:

NeuroBo Pharmaceuticals, Inc.
177 Huntington Avenue, Suite 1700
Boston, MA 02115
Attn: President
Email:

with a copy to (which shall not constitute notice):

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
One Financial Center
Boston, MA 02111
Attention: William T. Whelan and Marc D. Mantell
Email:

10.8 ***Cooperation***. Each Party agrees to cooperate with the other Party and to execute and deliver such further documents, certificates, agreements and instruments and to take such other actions as may be reasonably requested by the other Party to evidence or reflect the Contemplated Transactions and to carry out the intent and purposes of this Agreement.

10.9 ***Severability***. Any term or provision of this Agreement that is invalid or unenforceable in any situation in any jurisdiction shall not affect the validity or enforceability of the remaining terms and provisions of this Agreement or the validity or enforceability of the offending term or provision in any other situation or in any other jurisdiction. If a final judgment of a court of competent jurisdiction declares that any term or provision of this Agreement is invalid or unenforceable, the Parties agree that the court making such determination shall have the power to limit such term or provision, to delete specific words or phrases or to replace such term or provision with a term or provision that is valid and enforceable and that comes closest to expressing the intention of the invalid or unenforceable term or provision, and this Agreement shall be valid and enforceable as so modified. In the event such court does not exercise the power granted to it in the prior sentence, the Parties agree to replace such invalid or unenforceable term or provision with a valid and enforceable term or provision that will achieve, to the extent possible, the economic, business and other purposes of such invalid or unenforceable term or provision.

10.10 ***Other Remedies; Specific Performance***. Except as otherwise provided herein, any and all remedies herein expressly conferred upon a Party will be deemed cumulative with and not exclusive of any other remedy conferred hereby, or by law or equity upon such Party, and the exercise by a Party of any one remedy will not preclude the exercise of any other remedy. The Parties agree that irreparable damage for which monetary damages, even if available, would not be an adequate remedy, would occur in the event that any Party does not perform the provisions of this Agreement (including failing to take such actions as are required of it hereunder to consummate this Agreement) in accordance with its specified terms or otherwise breaches such provisions. Accordingly, the Parties acknowledge and agree that the Parties shall be entitled to an injunction, specific performance and other equitable relief to prevent breaches of this Agreement and to enforce specifically the terms and provisions hereof, in addition to any other remedy to which they are entitled at law or in equity. Each of the Parties agrees that it will not oppose the granting of an injunction, specific performance or other equitable relief on the basis that any other Party has an adequate remedy at law or that any award of specific performance is not an appropriate remedy for any reason at law or in equity. Any Party seeking an injunction or injunctions to prevent breaches of this Agreement shall not be required to provide any bond or other security in connection with, any such order or injunction.

10.11 ***No Third Party Beneficiaries***. Nothing in this Agreement, express or implied, is intended to or shall confer upon any Person (other than the Parties and the D&O Indemnified Parties to the extent of their respective rights pursuant to *Section 5.7*) any right, benefit or remedy of any nature whatsoever under or by reason of this Agreement.

10.12 ***Construction***.

(a) References to "cash," "dollars" or "$" are to U.S. dollars.

(b) For purposes of this Agreement, whenever the context requires: the singular number shall include the plural, and vice versa; the masculine gender shall include the feminine and neuter genders; the feminine gender shall include the masculine and neuter genders; and the neuter gender shall include masculine and feminine genders.

(c) The Parties have participated jointly in the negotiating and drafting of this Agreement and agree that any rule of construction to the effect that ambiguities are to be resolved against the drafting Party shall not be applied in the construction or interpretation of this Agreement, and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any provision of this Agreement.

(d) As used in this Agreement, the words "include" and "including," and variations thereof, shall not be deemed to be terms of limitation, but rather shall be deemed to be followed by the words "without limitation."

(e) Except as otherwise indicated, all references in this Agreement to "Sections," "Exhibits" and "Schedules" are intended to refer to Sections of this Agreement and Exhibits and Schedules to this Agreement, respectively.

(f) Any reference to legislation or to any provision of any legislation shall include any modification, amendment, re-enactment thereof, any legislative provision substituted therefore and all rules, regulations, and statutory instruments issued or related to such legislations.

(g) The bold-faced headings and table of contents contained in this Agreement are for convenience of reference only, shall not be deemed to be a part of this Agreement and shall not be referred to in connection with the construction or interpretation of this Agreement.

(h) The Parties agree that each of the Company Disclosure Schedule and the Parent Disclosure Schedule shall be arranged in sections and subsections corresponding to the numbered and lettered sections and subsections contained in this Agreement. The disclosures in any section or subsection of the Company Disclosure Schedule or the Parent Disclosure Schedule shall qualify other sections and subsections in this Agreement to the extent it is readily apparent on its face from a reading of the disclosure that such disclosure is applicable to such other sections and subsections.

(i) Each of "delivered" or "made available" means, with respect to any documentation, that prior to 11:59 p.m. (Eastern Time) on the date that is two Business Days prior to the date of this Agreement (i) a copy of such material has been posted to and made available by a Party to the other Party and its Representatives in the electronic data room maintained by such disclosing Party or (ii) such material is disclosed in the Parent SEC Documents filed with the SEC at least two (2) Business Days prior to the date hereof and publicly made available on the SEC's Electronic Data Gathering Analysis and Retrieval system.

(j) Whenever the last day for the exercise of any privilege or the discharge of any duty hereunder shall fall upon a Saturday, Sunday, or any date on which banks in New York, New York are authorized or obligated by Law to be closed, the Party having such privilege or duty may exercise such privilege or discharge such duty on the next succeeding day which is a regular Business Day.

(*Remainder of page intentionally left blank*)

**IN WITNESS WHEREOF,** the Parties have caused this Agreement to be executed as of the date first above written.

**GEMPHIRE THERAPEUTICS INC.**

By: /s/ STEVE GULLANS

Name: Steven Gullans
Title: *Chief Executive Officer and President*

**GR MERGER SUB INC.**
**BY ITS SOLE STOCKHOLDER:**

Gemphire Therapeutics Inc.

By: /s/ STEVE GULLANS

Name: Steven Gullans
Title: *Chief Executive Officer and President*

**NEUROBO PHARMACEUTICALS, INC.**

By: /s/ JOHN L. BROOKS III

Name: John L. Brooks III
Title: *President and Chief Executive Officer*

SIGNATURE PAGE TO
AGREEMENT AND PLAN OF MERGER AND REORGANIZATION

**EXHIBIT A**

**CERTAIN DEFINITIONS**

(a) For purposes of this Agreement (including this **Exhibit A**):

"***Acquisition Inquiry***" means, with respect to a Party, an inquiry, indication of interest or request for information (other than an inquiry, indication of interest or request for information made or submitted by the Company, on the one hand, or Parent, on the other hand, to the other Party) that would reasonably be expected to lead to an Acquisition Proposal.

"***Acquisition Proposal***" means, with respect to a Party, any offer or proposal, whether written or oral (other than an offer or proposal made or submitted by or on behalf of the Company or any of its Affiliates, on the one hand, or by or on behalf of Parent or any of its Affiliates, on the other hand, to the other Party) contemplating or otherwise relating to any Acquisition Transaction with such Party.

"***Acquisition Transaction***" means any transaction or series of related transactions involving:

(i) any merger, consolidation, amalgamation, share exchange, business combination, issuance of securities, acquisition of securities, reorganization, recapitalization, tender offer, exchange offer or other similar transaction: (i) in which a Party is a constituent entity; (ii) in which a Person or "group" (as defined in the Exchange Act and the rules promulgated thereunder) of Persons directly or indirectly acquires beneficial or record ownership of securities representing more than 20% of the outstanding securities of any class of voting securities of a Party or any of its Subsidiaries; or (iii) in which a Party or any of its Subsidiaries issues securities representing more than 20% of the outstanding securities of any class of voting securities of such Party or any of its Subsidiaries; *provided*, *however*, that, in the case of the Company, to the extent that the Pre-Closing Financing is effected in accordance with the terms and conditions of this Agreement, the Pre-Closing Financing shall not constitute an Acquisition Transaction, and, in the case of Parent, to the extent that a Parent Financing is effected in accordance with the terms and conditions of this Agreement, the Parent Financing shall not constitute an Acquisition Transaction; or

(ii) any sale, lease, exchange, transfer, license, acquisition or disposition of any business or businesses or assets that constitute or account for 20% or more of the consolidated book value or the fair market value of the assets of a Party and its Subsidiaries, taken as a whole.

"***Affiliate***" of a Person means any other Person that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such Person. The term "control" (including the terms "controlled by" and "under common control with") means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise.

"***Business Day***" means any day other than a Saturday, Sunday or other day on which banks in New York, New York are authorized or obligated by Law to be closed.

"***Cash and Cash Equivalents***" means all (a) cash and cash equivalents (excluding Restricted Cash) and (b) marketable securities, in each case determined in accordance with GAAP, consistently applied.

"***Code***" means the Internal Revenue Code of 1986, as amended.

"***Company Affiliate***" means any Person that is (or at any relevant time was) under common control with the Company within the meaning of Sections 414(b), (c), (m) and (o) of the Code, and the regulations issued thereunder.

"***Company Associate***" means any current or former employee, independent contractor, officer or director of the Company.

"***Company Board***" means the board of directors of the Company.

"***Company Capital Stock***" means the Company Common Stock and the Company Preferred Stock.

"***Company Change in Circumstance***" means (a) a change in circumstances neither known nor reasonably foreseeable by the Company Board as of, or prior to, the date of this Agreement nor known nor reasonably foreseeable by any of the officers of the Company as of or prior to the date of this Agreement and (b) does not relate to (i) any Acquisition Proposal, (ii) any events, changes or circumstances relating to Parent, Merger Sub or any of their Subsidiaries, (iii) clearance of the Merger under any applicable antitrust Laws or (iv) the mere fact that the Company meets or exceeds any internal or analysts' published projections, forecasts, estimates or predictions of revenue, earnings or other financial or operating metrics for any period ending on or after the date hereof.

"***Company Common Stock***" means the Common Stock, $1.000000 par value per share, of the Company.

"***Company Contract***" means any Contract: (a) to which the Company or any of its Subsidiaries is a Party; (b) by which the Company or any of its Subsidiaries or any Company IP or any other asset of the Company or its Subsidiaries is or may become bound or under which the Company or any of its Subsidiaries has, or may become subject to, any obligation; or (c) under which the Company or any of its Subsidiaries has or may acquire any right or interest.

"***Company Convertible Notes***" means the outstanding notes convertible into Company Capital Stock set forth on *Section 2.5(a)* of the Company Disclosure Schedule.

"***Company ERISA Affiliate***" means any corporation or trade or business (whether or not incorporated) which is (or at any relevant time was) treated with the Company or any of its Subsidiaries as a single employer within the meaning of Section 414 of the Code.

"***Company Fundamental Representations***" means the representations and warranties of the Company set forth in *Sections 2.1* (Due Organization; Subsidiaries), *2.3* (Authority; Binding Nature of Agreement), *2.6(a)* and *(c)* (Capitalization) and *2.20* (No Financial Advisors).

"***Company IP***" means all Intellectual Property Rights that are owned or purported to be owned by the Company or its Subsidiaries.

"***Company Material Adverse Effect***" means any change, circumstance, condition, development, effect, event, occurrence, result or state of fact that, considered together with all other such change, circumstance, condition, development, effect, event, occurrence, result or state of fact that have occurred prior to the date of determination of the occurrence of a Company Material Adverse Effect, has or would reasonably be expected to have a material adverse effect on the business, condition (financial or otherwise), assets, liabilities or results of operations of the Company or its Subsidiaries or ability to consummate the Contemplated Transactions, taken as a whole; *provided, however*, that none of the following shall be taken into account in determining whether there has been a Company Material Adverse Effect: (a) general business or economic conditions affecting the industry in which the Company and its Subsidiaries operate, (b) acts of war, armed hostilities or terrorism, (c) changes in financial, banking or securities markets, (d) the failure by the Company to meet internal or analysts' expectations or projections or the results of operations of the Company, (e) any clinical trial programs or studies, including any adverse data, event or outcome arising out of or relating to any such programs or studies, (f) any change in, or any compliance with or action taken for the purpose of complying with, any Law or GAAP (or interpretations of any Law or GAAP), (g) resulting from the announcement of this Agreement or the pendency of the Contemplated Transactions, (h) continued losses from operations or decreases in cash balances of the Company or any of its Subsidiaries, or (i) resulting from the taking of any action specifically required to be taken by this Agreement; except in each case with respect to clauses (a) through (c), to the extent they disproportionately affect the Company and its Subsidiaries, taken as a whole, relative to other similarly situated companies in the industries in which the Company and its Subsidiaries operate.

"***Company Options***" means options or other rights to purchase shares of Company Common Stock issued by the Company.

"***Company Triggering Event***" shall be deemed to have occurred if: (a) the Company shall have made a Company Board Adverse Recommendation Change; (b) the Company Board or any committee thereof shall have publicly approved, endorsed or recommended any Acquisition Proposal; or (c) the Company shall have entered into any letter of intent or similar document relating to any Acquisition Proposal (other than a confidentiality agreement permitted pursuant to *Section 4.5*).

"***Company Unaudited Interim Balance Sheet***" means the unaudited consolidated balance sheet of the Company and its consolidated Subsidiaries for the period ended March 31, 2019 provided to Parent prior to the date of this Agreement.

"***Confidentiality Agreement***" means the Mutual Non-Disclosure Agreement, dated as of April 17, 2019, by and between the Company and Parent.

"***Consent***" means any approval, consent, ratification, permission, waiver or authorization (including any Governmental Authorization).

"***Consideration***" means (a) the Exchange Ratio used to determine the number of shares of Parent Common Stock to be issued to the holders of Company Common Stock as contemplated by *Section 1.5* and the number of Parent Options to be substituted for the Company Options to be assumed by Parent as contemplated by *Section 5.5* and (b) the right of the holders of Parent Common Stock as of immediately prior to the Effective Time to receive contingent cash payments pursuant to the CVR Agreement.

"***Contemplated Transactions***" means the Merger, the Preferred Stock Conversion, the Convertible Note Conversion and the other transactions and actions contemplated by this Agreement, including the Reverse Split, the Stock Split and the CVR Agreement.

"***Contract***" means, with respect to any Person, any written or oral agreement, contract, subcontract, lease (whether for real or personal property), mortgage, license, sublicense or other legally binding commitment or undertaking of any nature to which such Person is a party or by which such Person or any of its assets are bound or affected under applicable Law.

"***DGCL***" means the General Corporation Law of the State of Delaware.

"***Encumbrance***" means any lien, pledge, hypothecation, charge, mortgage, security interest, lease, license, option, easement, reservation, servitude, adverse title, claim, infringement, interference, option, right of first refusal, preemptive right, community property interest or restriction or encumbrance of any nature (including any restriction on the voting of any security, any restriction on the transfer of any security or other asset, any restriction on the receipt of any income derived from any asset, any restriction on the use of any asset and any restriction on the possession, exercise or transfer of any other attribute of ownership of any asset).

"***Enforceability Exceptions***" means the (a) Laws of general application relating to bankruptcy, insolvency and the relief of debtors; and (b) rules of law governing specific performance, injunctive relief and other equitable remedies.

"***Entity***" means any corporation (including any non-profit corporation), partnership (including any general partnership, limited partnership or limited liability partnership), joint venture, estate, trust, company (including any company limited by shares, limited liability company or joint stock company), firm, society or other enterprise, association, organization or entity, and each of its successors.

"***Environmental Law***" means any federal, state, local or foreign Law relating to pollution or protection of human health or the environment (including ambient air, surface water, ground water, land surface or subsurface strata), including any Law or regulation relating to emissions, discharges,

releases or threatened releases of Hazardous Materials, or otherwise relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Hazardous Materials.

"***ERISA***" means the Employee Retirement Income Security Act of 1974, as amended.

"***Exchange Act***" means the Securities Exchange Act of 1934, as amended.

"***Exchange Ratio***" means, subject to *Section 1.5(h)*, the following ratio (rounded to four decimal places): the quotient obtained by dividing (a) the Company Merger Shares by (b) the Company Outstanding Shares, in which:

- "***Aggregate Valuation***" means the sum of (i) the Company Valuation, plus (ii) the Parent Valuation.
- "***Company Allocation Percentage***" the quotient (expressed as a percentage, with the percentage rounded to two decimal places) determined by dividing (i) the Company Valuation *by* (ii) the Aggregate Valuation.
- "***Company Merger Shares***" means the product determined by multiplying (i) the Post-Closing Parent Shares *by* (ii) the Company Allocation Percentage.
- "***Company Outstanding Shares***" means the total number of shares of Company Capital Stock outstanding immediately prior to the Effective Time expressed on a fully-diluted and as-converted to Company Common Stock basis, calculated based on the treasury stock method and assuming, without limitation or duplication, (i) the exercise of all Company Options outstanding as of immediately prior to the Effective Time, (ii) the effectiveness of the Preferred Stock Conversion, the Convertible Note Conversion and the Stock Split, (iii) the Pre-Closing Financing and (iv) the issuance of shares of Company Capital Stock in respect of all other outstanding options, restricted stock awards, warrants or rights to receive such shares, whether conditional or unconditional and including any outstanding options, warrants or rights triggered by or associated with the consummation of the Merger (but excluding any shares of Company Common Stock reserved for issuance other than with respect to outstanding Company Options under the Company Plan as of immediately prior to the Effective Time).
- "***Company Valuation***" means the sum of (i) $94,000,000, *plus* (ii) the aggregate amount of gross proceeds received by the Company in the Pre-Closing Financing up to and including $50,000,000 (for the avoidance of doubt, the Company Valuation will not increase to the extent the Company raises gross proceeds in the Pre-Closing Financing greater than $50,000,000).
- "***Parent Allocation Percentage***" means the quotient (expressed as a percentage, with the percentage rounded to two decimal places) determined by dividing (i) the Parent Valuation *by* (ii) the Aggregate Valuation.
- "***Parent Outstanding Shares***" means the total number of shares of Parent Common Stock outstanding immediately prior to the Effective Time expressed on a fully-diluted basis and as converted to Parent Common Stock basis, and (i) assuming, without limitation or duplication, (A) the settlement in shares of each Parent Option outstanding as of the Effective Time pursuant to *Section 5.5(d)*, solely to the extent such Parent Option will not be canceled at the Effective Time pursuant to *Section 5.5(d)* or exercised prior thereto, (B) the issuance of Parent Common Stock in respect of all other options, warrants or rights to receive such shares that will be outstanding immediately after the Effective Time, including the Parent Warrants, and (C) for the avoidance of doubt, the effectiveness of the Reverse Split, and (ii) without regard to and excluding any Parent Option canceled at the Effective Time pursuant to *Section 5.5(d)*.

- "***Parent Valuation***" means the sum of (i) $8,000,000, *plus* (ii) the Parent Cash Amount, but only to the extent that the Parent Cash Amount is a negative number (in which case the Parent Valuation shall be reduced by the absolute value of the Parent Cash Amount).

- "***Post-Closing Parent Shares***" means the quotient determined by dividing (i) the Parent Outstanding Shares *by* (ii) the Parent Allocation Percentage.

"***GAAP***" means generally accepted accounting principles and practices in effect from time to time within the United States applied consistently throughout the period involved.

"***Governmental Authorization***" means any: (a) permit, license, certificate, franchise, permission, variance, exception, order, clearance, registration, qualification or authorization issued, granted, given or otherwise made available by or under the authority of any Governmental Body or pursuant to any Law; or (b) right under any Contract with any Governmental Body.

"***Governmental Body***" means any: (a) nation, state, commonwealth, province, territory, county, municipality, district or other jurisdiction of any nature; (b) federal, state, local, municipal, foreign or other government; (c) governmental or quasi-governmental authority of any nature (including any governmental division, department, agency, commission, bureau, instrumentality, official, ministry, fund, foundation, center, organization, unit, body or Entity and any court or other tribunal, and for the avoidance of doubt, any taxing authority); or (d) self-regulatory organization (including Nasdaq).

"***Hazardous Materials***" means any pollutant, chemical, substance and any toxic, infectious, carcinogenic, reactive, corrosive, ignitable or flammable chemical, or chemical compound, or hazardous substance, material or waste, whether solid, liquid or gas, that is subject to regulation, control or remediation under any Environmental Law, including without limitation, crude oil or any fraction thereof, and petroleum products or by-products.

"***HSR Act***" means the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended.

"***Intellectual Property Rights***" means and includes all past, present, and future rights of the following types, which may exist or be created, registered, applied for or to be applied for registration under the laws of any jurisdiction in the world: (a) rights associated with works of authorship, including exclusive exploitation rights, copyrights, moral rights, software, databases, and data; (b) trademarks, service marks, trade dress, logos, trade names, corporate names, brand names and other source identifiers, domain names and URLs and similar rights and any goodwill associated therewith; (c) rights associated with trade secrets, know how, inventions, invention disclosures, methods, processes, protocols, specifications, techniques and other forms of technology; (d) patents and industrial property rights; and (e) other similar proprietary rights in intellectual property of every kind and nature, including confidential information; (f) rights of privacy and publicity; and (g) all registrations, renewals, extensions, statutory invention registrations, provisionals, nonprovisionals, continuations, continuations-in-part, divisionals, reexaminations or reissues of, term extensions, supplementary protection certificates and applications for, any of the rights referred to in clauses "(a)" through "(f)" above (whether or not in tangible form and including all tangible embodiments of any of the foregoing, such as samples, studies and summaries), along with all rights to prosecute and perfect the same through administrative prosecution, registration, recordation or other administrative proceeding, and all causes of action and rights to sue or seek other remedies arising from or relating to the foregoing.

"***IRS***" means the United States Internal Revenue Service.

"***Knowledge***" means, with respect to an individual, that such individual is actually aware of the relevant fact or such individual would reasonably be expected to know such fact in the ordinary course of the performance of such individual's employment responsibilities. Any Person that is an Entity shall have Knowledge if any officer or director of such Person as of the date such knowledge is imputed has Knowledge of such fact or other matter.

"***Law***" means any federal, state, national, foreign, material local or municipal or other law, statute, constitution, principle of common law, resolution, ordinance, code, edict, decree, rule, regulation, ruling or requirement issued, enacted, adopted, promulgated, implemented or otherwise put into effect by or under the authority of any Governmental Body (including under the authority of Nasdaq or the Financial Industry Regulatory Authority).

"***Legal Proceeding***" means any action, suit, litigation, arbitration, proceeding (including any civil, criminal, administrative, investigative or appellate proceeding), hearing, inquiry, audit, examination or investigation commenced, brought, conducted or heard by or before, or otherwise involving, any court or other Governmental Body or any arbitrator or arbitration panel.

"***Merger Sub Board***" means the board of directors of Merger Sub.

"***Nasdaq***" means the Nasdaq Stock Market, including the Nasdaq Capital Market or such other Nasdaq market on which shares of Parent Common Stock are then listed.

"***Ordinary Course of Business***" means, in the case of each of the Company and Parent, such actions taken in the ordinary course of its normal operations and consistent with its past practices.

"***Organizational Documents***" means, with respect to any Person (other than an individual), (a) the certificate or articles of association or incorporation or organization or limited partnership or limited liability company, and any joint venture, limited liability company, operating or partnership agreement and other similar documents adopted or filed in connection with the creation, formation or organization of such Person and (b) all bylaws, regulations and similar documents or agreements relating to the organization or governance of such Person, in each case, as amended or supplemented.

"***Parent Associate***" means any current or former employee, independent contractor, officer or director of Parent.

"***Parent Balance Sheet***" means the unaudited balance sheet of Parent as of March 31, 2019 (the "***Parent Balance Sheet Date***"), included in Parent's Report on Form 10-Q for the quarterly period ended March 31, 2019, as filed with the SEC.

"***Parent Board***" means the board of directors of Parent.

"***Parent Cash Amount***" means, as of the applicable measurement date, (i) the sum of (without duplication) all Cash and Cash Equivalents, short-term investments, accrued investment interest receivable, and any prepaid refundable deposits listed on *Section 1.12(a)* of the Parent Disclosure Schedule of Parent *less* (ii) the sum of (without duplication) (A) Parent's accounts payable, accrued expenses, and debt, and (B) any Parent Transaction Expenses; in each case, as of such applicable date and determined in a manner consistent with the manner in which such items were historically determined and in accordance with GAAP and Parent's audited financial statements and the Parent Balance Sheet. For clarity, any consideration (i) actually received or to be received by Parent prior to the Anticipated Closing Date pursuant to signed purchase agreements in effect as of the Determination Date and not subject to any contingencies in connection with any Parent Financing or (ii) actually received prior to the Determination Date by Parent prior to the Determination Date in connection with any Permitted Disposition, net of the current fair value of all liabilities and obligations relating to such Permitted Disposition, shall be included in the Parent Cash Amount. Notwithstanding the foregoing, Parent Cash Amount shall not include any liabilities of Parent that are covered by the Gemcabene Funding (as defined in the CVR Agreement).

"***Parent Change in Circumstance***" means a change in circumstances neither known nor reasonably foreseeable by the Parent Board as of, or prior to, the date of this Agreement nor known nor reasonably foreseeable by any of the officers of Parent as of or prior to the date of this Agreement and (b) does not relate to (i) any Acquisition Proposal, (ii) any events, changes or circumstances relating to the Company or any of its Affiliates, (iii) clearance of the Merger under any applicable antitrust Laws

or (iv) the mere fact that Parent meets or exceeds any internal or analysts' published projections, forecasts, estimates or predictions of revenue, earnings or other financial or operating metrics for any period ending on or after the date hereof, or changes after the date of the Agreement in the market price or trading volume of Parent Common Stock.

"***Parent Closing Price***" means the volume weighted average closing trading price of a share of Parent Common Stock on Nasdaq for the five consecutive trading days ending five trading days immediately prior to the date upon which the Merger becomes effective.

"***Parent Common Stock***" means the Common Stock, $0.01 par value per share, of Parent.

"***Parent Contract***" means any Contract: (a) to which Parent is a party; (b) by which Parent or any Parent IP or any other asset of Parent is or may become bound or under which Parent has, or may become subject to, any obligation; or (c) under which Parent has or may acquire any right or interest.

"***Parent ERISA Affiliate***" means any corporation or trade or business (whether or not incorporated) which is (or at any relevant time was) treated with Parent or any of its Subsidiaries as a single employer within the meaning of Section 414 of the Code.

"***Parent Financing***" means the sale and issuance of securities by Parent to the extent that the Company has consented in writing to such sale and issuance (such consent not to be unreasonably withheld, conditioned or delayed).

"***Parent Fundamental Representations***" means the representations and warranties of Parent and Merger Sub set forth in *Sections 3.1(a)* (Due Organization; Subsidiaries), *3.3* (Authority; Binding Nature of Agreement), *3.6(a)* and *(c)* (Capitalization) and *3.21* (No Financial Advisors).

"***Parent IP***" means all Intellectual Property Rights that are owned or purported to be owned by Parent or its Subsidiaries.

"***Parent Material Adverse Effect***" means any change, circumstance, condition, development, effect, event, occurrence, result or state of fact that, considered together with all other change, circumstance, condition, development, effect, event, occurrence, result or state of fact that have occurred prior to the date of determination of the occurrence of a Parent Material Adverse Effect, has or would reasonably be expected to have a material adverse effect on the business, condition (financial or otherwise), assets, liabilities or results of operations of Parent or ability to consummate the Contemplated Transactions; *provided, however*, that none of the following shall be taken into account in determining whether there has been a Parent Material Adverse Effect: (a) general business or economic conditions affecting the industry in which Parent operates, (b) acts of war, armed hostilities or terrorism, (c) changes in financial, banking or securities markets, (d) the taking of any action required to be taken by this Agreement, (e) any change in the stock price or trading volume of Parent Common Stock (it being understood, however, that any Effect causing or contributing to any change in stock price or trading volume of Parent Common Stock may be taken into account in determining whether a Parent Material Adverse Effect has occurred, unless such Effects are otherwise excepted from this definition), (f) the failure of Parent to meet internal or analysts' expectations or projections or the results of operations of Parent; (g) any clinical trial programs or studies, including any adverse data, event or outcome arising out of or related to any such programs or studies; (h) any change in, or any compliance with or action taken for the purpose of complying with, any Law or GAAP (or interpretations of any Law or GAAP); (h) continued losses from operations or decreases in cash balances of Parent or any of its Subsidiaries (j) resulting from the announcement of this Agreement or the pendency of the Contemplated Transactions; or (k) resulting from the taking of any action required to be taken by this Agreement, except in each case with respect to clauses (a) through (c), to the extent they disproportionately affect Parent relative to other similarly situated companies in the industries in which Parent operates.

"***Parent Options***" means options or other rights to purchase shares of Parent Common Stock issued by Parent.

"***Parent Stock Plans***" means, the Amended and Restated Parent 2015 Equity Incentive Plan, the Parent 2016 Inducement Plan, and the Parent 2016 Employee Stock Purchase Plan, in each case, as may be amended from time to time.

"***Parent Transaction Expenses***" shall mean the sum of (a) the cash cost of any change of control payments or severance (including a reasonable estimate of payment or reimbursement for continued coverage under any employee benefit plan), termination or similar payments that are due or become due to any current or former employee, director or independent contractor of Parent upon the consummation of the Contemplated Transaction and that are unpaid, and (b) any costs, fees and expenses incurred by Parent, or for which Parent is liable, in connection with the negotiation preparation and execution of the Agreement and the consummation of the Contemplated Transactions (including in connection with any stockholder litigation relating to this Agreement or the Contemplated Transaction) and that are unpaid, including brokerage fees and commissions, finders' fees or financial advisory fees, any fee and expenses of counsel or accountants payable by Parent and Parent's portion of the cost of the and the Nasdaq Fees, but expressly excluding (i) the Company's portion of the cost of the D&O Tail Policy, and (ii) the employer portion of any and all withholding and other payroll Taxes arising from the issuance shares of Parent Common Stock upon the exercise of any Parent Option pursuant to *Section 5.5(d)*.

"***Parent Triggering Event***" shall be deemed to have occurred if: (a) Parent shall have failed to include in the Proxy Statement the Parent Board Recommendation, shall have made a Parent Board Adverse Recommendation Change, (b) the Parent Board shall have failed to publicly reaffirm the Parent Board Recommendation within ten Business Days after the Company so requests in writing; (c) the Parent Board or any committee thereof shall have publicly approved, endorsed or recommended any Acquisition Proposal; or (d) Parent shall have entered into any letter of intent or similar document relating to any Acquisition Proposal (other than a confidentiality agreement permitted pursuant to *Section 4.4*); or (e) Parent has breached the provisions of *Section 4.4*.

"***Parent Warrants"*** means the warrants to purchase capital stock of Parent listed on **Exhibit E**.

"***Party***" or "***Parties***" means the Company, Merger Sub and Parent.

"***Permitted Encumbrance***" means: (a) any liens for current Taxes not yet delinquent or for Taxes that are being contested in good faith and for which adequate reserves have been made on the Company Unaudited Interim Balance Sheet or the Parent Balance Sheet, as applicable; (b) minor liens that have arisen in the Ordinary Course of Business and that do not (in any case or in the aggregate) materially detract from the value of the assets or properties subject thereto or materially impair the operations of the Company or any of its Subsidiaries or Parent, as applicable; (c) statutory liens to secure obligations to landlords, lessors or renters under leases or rental agreements; (d) deposits or pledges made in connection with, or to secure payment of, workers' compensation, unemployment insurance or similar programs mandated by Law; (e) non-exclusive licenses of Intellectual Property Rights granted by the Company or any of its Subsidiaries or Parent, as applicable, in the Ordinary Course of Business and that do not (in any case or in the aggregate) materially detract from the value of the Intellectual Property Rights subject thereto; and (f) statutory liens in favor of carriers, warehousemen, mechanics and materialmen, to secure claims for labor, materials or supplies.

"***Person***" means any individual, Entity or Governmental Body.

"***Pre-Closing Financing***" means the acquisition of Company securities consummated or to be consummated prior to the Closing with aggregate gross cash proceeds to the Company of at least $24,240,000 (inclusive of amounts raised on or after May 30, 2019 but not including the Preferred Stock

Conversion or Convertible Note Conversion) pursuant to the terms and conditions set forth in the Subscription Agreements.

"***Proxy Statement***" means the proxy statement to be sent to Parent's stockholders in connection with the Parent Stockholders' Meeting.

"***Reference Date***" means July 23, 2019.

"***Registered IP***" means all Intellectual Property Rights that are registered or issued under the authority of any Governmental Body, including all patents, registered copyrights, registered mask works, and registered trademarks, service marks and trade dress, and all applications for any of the foregoing.

"***Registration Statement***" means the registration statement on Form S-4 (or any other applicable form under the Securities Act to register Parent Common Stock) to be filed with the SEC by Parent registering the public offering and sale of Parent Common Stock to all holders of Company Common Stock in the Merger unless such registration is not allowable under the Securities Act, as said registration statement may be amended prior to the time it is declared effective by the SEC.

"***Representatives***" means directors, officers, employees, agents, attorneys, accountants, investment bankers, advisors and representatives.

"***Restricted Cash***" means any cash or cash equivalents that are unavailable for dividend or distribution as a result of the requirements of applicable Law or the dividend or distribution of which is subject to Tax, including any withholding or other similar Tax, or the dividend or distribution of which would produce other adverse Tax consequences for Parent or its Affiliates.

"***Reverse Split***" means a reverse stock split of all outstanding shares of Parent Common Stock at a reverse stock split ratio in the range and at the time prior to Closing mutually agreed to by Parent and Company.

"***Sarbanes-Oxley Act***" means the Sarbanes-Oxley Act of 2002.

"***SEC***" means the United States Securities and Exchange Commission.

"***Securities Act***" means the Securities Act of 1933, as amended.

"***Series A Preferred Stock***" means the shares of the Series A Preferred Stock of the Company, par value $1.000000 per share.

"***Series B Preferred Stock***" means the shares of the Series B Preferred Stock of the Company, par value $1.000000 per share.

"***Stock Split***" means a stock split of all outstanding shares of Company Capital Stock at a stock split ratio of 10,000 to 1 or such range and at the time prior to Closing mutually agreed to by Parent and Company.

"***Stockholders' Agreement***" means the Fourth Amended and Restated Stockholders' Agreement, dated as of May 30, 2019, by and among the Company and its stockholders.

"***Subsequent Transaction***" means any Acquisition Transaction (with all references to 20% in the definition of Acquisition Transaction being treated as references to 80% for these purposes).

An entity shall be deemed to be a "***Subsidiary***" of a Person if such Person directly or indirectly owns or purports to own, beneficially or of record, (a) an amount of voting securities or other interests in such entity that is sufficient to enable such Person to elect at least a majority of the members of such entity's board of directors or other governing body, or (b) at least 50% of the outstanding equity, voting, beneficial or financial interests in such Entity.

"***Subscription Agreement***" means any preferred stock purchase agreement, as well as related investment agreements entered into by and among the Company and the Person(s) named therein (in each case, substantially in the forms entered into by the Company in connection with the Pre-Closing Financing prior to the date of this Agreement), pursuant to which such Person(s) have agreed to purchase the number of shares of Company's Series B Preferred Stock in such amounts and on such terms set forth therein in connection with the Pre-Closing Financing.

"***Superior Offer***" means an unsolicited bona fide written Acquisition Proposal (with all references to 20% in the definition of Acquisition Transaction being treated as references to greater than 80% for these purposes) that: (a) was not obtained or made as a direct or indirect result of a breach of (or in violation of) this Agreement; and (b) is on terms and conditions that the Parent Board or the Company Board, as applicable, determines in good faith, based on such matters that it deems relevant, as well as any written offer by the other Party to amend the terms of this Agreement, and following consultation with its outside legal counsel and outside financial advisors, and after taking into account all financial, legal, regulatory and other aspects of such Acquisition Proposal (including the financing terms and the ability of such third party to finance such Acquisition Proposal), would reasonably be expected to be consummated in accordance with its terms and would result in a transaction that is more favorable, from a financial point of view, to Parent's stockholders or the Company's stockholders, as applicable, than the terms of the Contemplated Transactions (after taking into account any revisions to the Contemplated Transactions offered by the other Party).

"***Takeover Statute***" means any "fair price," "moratorium," "control share acquisition" or other similar anti-takeover Law.

"***Tax***" means any federal, state, local, foreign or other tax, including any income, capital gain, gross receipts, capital stock, profits, transfer, estimated, registration, stamp, premium, escheat, unclaimed property, customs duty, ad valorem, occupancy, occupation, alternative, add-on, windfall profits, value added, severance, property, business, production, sales, use, license, excise, franchise, employment, payroll, social security, disability, unemployment, workers' compensation, national health insurance, withholding or other taxes, duties, fees, assessments or governmental charges, surtaxes or deficiencies thereof of any kind whatsoever, however denominated, and including any fine, penalty, addition to tax or interest imposed by a Governmental Body with respect thereto.

"***Tax Return***" means any return (including any information return), report, statement, declaration, estimate, schedule, notice, notification, form, election, certificate or other document, and any amendment or supplement to any of the foregoing, filed with or submitted to, or required to be filed with or submitted to, any Governmental Body in connection with the determination, assessment, collection or payment of any Tax or in connection with the administration, implementation or enforcement of or compliance with any Law relating to any Tax.

"***Treasury Regulations***" means the United States Treasury regulations promulgated under the Code.

"***WARN Act***" means the Worker Adjustment Retraining and Notification Act of 1988, as amended, or any similar state or local plant closing mass layoff statute, rule or regulation.

b) Each of the following terms is defined in the Section set forth opposite such term:

| Term | Section |
|---|---|
| Accounting Firm | 1.12(a) |
| Agreement | Preamble |
| Allocation Certificate | 5.17(a) |
| Anti-Bribery Laws | 2.23 |
| Anticipated Closing Date | 1.12(a) |
| Business Associate Agreement | 2.14(f) |
| Certificate of Merger | 1.3 |
| Certifications | 3.7(a) |
| Closing | 1.3 |
| Closing Date | 1.3 |
| Company | Preamble |
| Company Audited Financial Statements | 5.21 |
| Company Benefit Plan | 2.17(a) |
| Company Board Adverse Recommendation Change | 5.2(d) |
| Company Board Recommendation | 5.2(d) |
| Company Budget | 4.2(b)(v) |
| Company Determination Notice | 5.2(e)(i) |
| Company Disclosure Schedule | Section 2 |
| Company Financial Statements | 2.7(a) |
| Company Foreign Plan | 2.17(n) |
| Company In-bound License | 2.12(d) |
| Company Interim Financial Statements | 5.21 |
| Company Lock-Up Agreement | Recitals |
| Company Material Contract | 2.13(a) |
| Company Out-bound License | 2.12(d) |
| Company Permits | 2.14(b) |
| Company Plan | 2.6(c) |
| Company Preferred Stock | 2.6(a) |
| Company Real Estate Leases | 2.11 |
| Company Registered IP | 2.12(a) |
| Company Series A Stockholder Matters | 5.3(a) |
| Company Signatories | Recitals |
| Company Stock Certificate | 1.7 |
| Company Stockholder Matters | 5.2(a) |
| Company Stockholder Support Agreement | Recitals |
| Company Stockholder Written Consent | Recitals |
| Company Tax Counsel | 5.11(c) |
| Company Termination Fee | 9.3(b) |
| Convertible Note Conversion | 5.20 |
| Costs | 5.7(a) |
| CVR | 1.6(a) |
| CVR Agreement | 1.6(a) |
| Determination Date | 1.12(a) |
| D&O Indemnified Parties | 5.7(a) |
| D&O Tail Policy | 5.7(d) |
| Dispute Notice | 1.12(b) |
| Dissenting Shares | 1.9(a) |
| Drug Regulatory Agency | 2.14(a) |
| EDGAR | 3.7(a) |
| Effective Time | 1.3 |
| End Date | 9.1(b) |

| Term | Section |
|---|---|
| Exchange Agent | 1.8(a) |
| Exchange Fund | 1.8(a) |
| FDA | 2.14(a) |
| FDCA | 2.14(a) |
| FLSA | 2.17(p) |
| Gemcabene | 5.22 |
| HIPAA | 2.14(f) |
| Information Statement | 5.2(a) |
| Intended Tax Treatment | 5.11(a) |
| Investor Agreements | 2.22(b) |
| Liability | 2.9 |
| Merger | Recitals |
| Merger Consideration | 1.5(a)(ii) |
| Merger Sub | Preamble |
| Nasdaq Fees | 5.10 |
| Nasdaq Listing Application | 5.10 |
| Parent Cash Calculation | 1.12(a) |
| Parent Cash Schedule | 1.12(a) |
| Parent | Preamble |
| Parent Benefit Plan | 3.17(a) |
| Parent Board Adverse Recommendation Change | 5.3(c) |
| Parent Board Recommendation | 5.3(c) |
| Parent Budget | 4.1(b)(v) |
| Parent Determination Notice | 5.3(d)(i) |
| Parent Disclosure Schedule | Section 3 |
| Parent In-bound License | 3.12(d) |
| Parent Lock-Up Agreement | Recitals |
| Parent Material Contract | 3.13 |
| Parent Out-bound License | 3.12(d) |
| Parent Outstanding Shares Certificate | 5.17(b) |
| Parent Permits | 3.14(b) |
| Parent Real Estate Leases | 3.11 |
| Parent Registered IP | 3.12(a) |
| Parent SEC Documents | 3.7(a) |
| Parent Signatories | Recitals |
| Parent Stockholder Matters | 5.3(a) |
| Parent Stockholder Support Agreement | Recitals |
| Parent Stockholders' Meeting | 5.3(a) |
| Parent Tax Counsel | 5.11(c) |
| Parent Termination Fee | 9.3(c) |
| Permitted Alternative Agreement | 9.1(k) |
| Permitted Disposition | 5.22 |
| Pre-Closing Period | 4.1(a) |
| Preferred Stock Conversion | 5.20 |
| Required Company Stockholder Vote | 2.4 |
| Required Parent Stockholder Vote | 3.4 |
| Response Date | 1.12(b) |
| Sensitive Data | 2.12(g) |
| Stockholder Notice | 5.2(c) |
| Surviving Corporation | 1.1 |
| Third Party Expenses | 9.3(d) |
| Willful Breach | 9.2 |

**Exhibit B-1**

**Form of Company Stockholder Voting Agreement**

**VOTING AGREEMENT**

This VOTING AGREEMENT (this "***Agreement***") is entered into as of July , 2019, among NeuroBo Pharmaceuticals, Inc., a Delaware corporation (the "***Company***"), Gemphire Therapeutics Inc., a Delaware corporation ("***Parent***"), and the undersigned stockholder (the "***Stockholder***") of the Company.

WHEREAS, as of the date hereof, the Stockholder is the sole record and beneficial owner of and has the sole power to vote (or to direct the voting of) the number of shares of common stock, par value $1.0000 per share (the "***Common Stock***"), and the number of shares of preferred stock, par value $1.0000 per share (the "***Preferred Stock***") of the Company, set forth opposite the Stockholder's name on *Schedule I* hereto (such Common Stock and Preferred Stock, together with any other shares of the Company ("***Shares***") the voting power of which is acquired by such Stockholder during the Voting Period (defined below), are collectively referred to herein as the "***Subject Shares***");

WHEREAS, the Company, Parent, and GR Merger Sub Inc., a Delaware corporation and a wholly-owned subsidiary of Parent ("***Merger Sub***"), are concurrently entering into an Agreement and Plan of Merger and Reorganization, dated on or about the date hereof (as amended from time to time, the "***Merger Agreement***"), pursuant to which Merger Sub shall be merged with and into the Company, with the Company continuing as the surviving corporation thereafter (the "***Merger***");

WHEREAS, the adoption of the Merger Agreement and the transactions contemplated thereby requires the written consent or affirmative vote of the holders of (a) (i) a majority of the shares of Common Stock and (ii) a majority of the shares of Preferred Stock, on an as-converted to Common Stock basis, in each case, outstanding on the record date for the Company Stockholder Written Consent and entitled to vote thereon, and (b) at least two-thirds of the outstanding shares of Preferred Stock, together as a single-class, on an as-converted to Common Stock basis; and

WHEREAS, as an inducement to the Company's and Parent's willingness to enter into the Merger Agreement and consummate the transactions contemplated thereby, transactions from which the Stockholder believes it will derive substantial benefits through its ownership interest in the Company, the Stockholder is entering into this Agreement.

NOW, THEREFORE, in consideration of the foregoing and the respective representations, warranties, covenants and agreements set forth herein, the parties agree as follows:

**ARTICLE I**

**DEFINITIONS**

SECTION 1.1 *Capitalized Terms*. For purposes of this Agreement, capitalized terms used and not defined herein shall have the respective meanings ascribed to them in the Merger Agreement.

**ARTICLE II**

**VOTING AGREEMENT AND IRREVOCABLE PROXY**

SECTION 2.1 *Agreement to Vote*.

(a) The Stockholder hereby agrees that, within five (5) business days after the Registration Statement becomes effective, the Stockholder shall execute and deliver, or cause to be executed and delivered, to the Company, a written consent in the form of *Exhibit A* hereto (a "***Written Consent***"). The Written Consent shall be coupled with an interest and shall be irrevocable. As used herein, the term

"***Expiration Time***" shall mean the earliest occurrence of (i) the Effective Time and (ii) the date and time of the valid termination of the Merger Agreement in accordance with its terms, and the term "***Voting Period***" shall mean such period of time between the date hereof and the Expiration Time.

(b) The Stockholder hereby agrees that, during the Voting Period, and at any duly called meeting of the stockholders of the Company (or any adjournment or postponement thereof), or in any other circumstances (including action by written consent of stockholders in lieu of a meeting) upon which a vote, adoption or other approval or consent with respect to the adoption of the Merger Agreement or the approval of the Merger and any of the transactions contemplated thereby is sought, the Stockholder shall, if a meeting is held, appear at the meeting, in person or by proxy, and shall provide a written consent or vote (or cause to be voted), in person or by proxy, all its Subject Shares, in each case (i) in favor of (A) any proposal to adopt and approve or reapprove the Merger Agreement and the transactions contemplated thereby, including without limitation (1) adoption and approval of the Merger Agreement and the Contemplated Transactions, (2) acknowledgment that the approval given thereby is irrevocable and that the Stockholder is aware of the Stockholder's rights to demand appraisal for its shares pursuant to Section 262 of the DGCL, a true and correct copy of which will be attached thereto, and that the Stockholder has received and read a copy of Section 262 of the DGCL, (3) acknowledgment that by the Stockholder's approval of the Merger the Stockholder is not entitled to appraisal rights with respect to the Subject Shares in connection with the Merger and thereby waives any rights to receive payment of the fair value of the Stockholder's capital stock under the DGCL, and (4) the Preferred Stock Conversion and the conversion of the Company Convertible Notes and (B) waiving any notice that may have been or may be required relating to the Merger or any of the other transactions contemplated by the Merger Agreement, and (ii) against (A) any Acquisition Proposal and (B) any action, proposal, transaction or agreement that, to the knowledge of the Stockholder, would reasonably be expected to result in a material breach of any covenant, representation or warranty or any other obligation or agreement of the Stockholder under this Agreement.

SECTION 2.2 *Grant of Irrevocable Proxy*. The Stockholder hereby appoints the Company and any designee of the Company, and each of them individually, as the Stockholder's proxy, with full power of substitution and resubstitution, to vote, including by executing written consents, during the Voting Period with respect to any and all of the Subject Shares on the matters and in the manner specified in *Section 2.1*; provided, however, that the Stockholder's grant of the proxy contemplated by this *Section 2.2* shall be effective with respect to *Section 2.1* if, and only if, the Stockholder does not deliver the Written Consent after being given a reasonable opportunity to do so, or attempts to vote or consent in a manner inconsistent with the provisions of *Section 2.1(b)*. The Stockholder shall take all further action or execute such other instruments as may be necessary to effectuate the intent of any such proxy. The Stockholder affirms that the irrevocable proxy given by it hereby with respect to the Merger Agreement and the transactions contemplated thereby is given to the Company by the Stockholder to secure the performance of the obligations of the Stockholder under this Agreement. It is agreed that the Company (and its officers on behalf of the Company) will use the irrevocable proxy that is granted by the Stockholder hereby only in accordance with applicable Laws and that, to the extent the Company (and its officers on behalf of the Company) uses such irrevocable proxy, it will only vote (or sign written consents in respect of) the Subject Shares subject to such irrevocable proxy with respect to the matters specified in, and in accordance with the provisions of, *Section 2.1*.

SECTION 2.3 *Nature of Irrevocable Proxy*. The proxy granted pursuant to *Section 2.2* to the Company by the Stockholder shall be irrevocable during the term of this Agreement, shall be deemed to be coupled with an interest sufficient in law to support an irrevocable proxy and shall revoke any and all prior proxies or powers of attorney granted by the Stockholder and no subsequent proxy or power of attorney shall be given or written consent executed (and if given or executed, shall not be effective) by the Stockholder with respect thereto. The proxy that may be granted hereunder shall

terminate upon the termination of this Agreement, but shall survive the death or incapacity of the Stockholder and any obligation of the Stockholder under this Agreement shall be binding upon the heirs, personal representatives and successors of the Stockholder.

**ARTICLE III**

**COVENANTS**

SECTION 3.1 *Subject Shares*.

(a) The Stockholder agrees that (i) from the date hereof until the Effective Time, it shall not, and shall not commit or agree to, without the prior written consent of Parent and the Company, directly or indirectly, whether by merger, consolidation or otherwise, offer for sale, sell (including short sales), transfer, tender, pledge, encumber, assign or otherwise dispose of (including by gift or by operation of law) (collectively, a "***Transfer***"), or enter into any contract, option, derivative, hedging or other agreement or arrangement or understanding (including any profit-sharing arrangement) with respect to, or consent to or permit, a Transfer of, any or all of the Subject Shares or any interest therein; and (ii) during the Voting Period, it shall not, and shall not commit or agree to, without the prior written consent of Parent and the Company, (A) grant any proxies or powers of attorney with respect to any or all of the Subject Shares or agree to vote (or sign written consents in respect of) the Subject Shares on any matter or divest itself of any voting rights in the Subject Shares, or (B) take any action that would have the effect of preventing or disabling the Stockholder from performing its obligations under this Agreement. Notwithstanding the foregoing, the Stockholder may, at any time, Transfer its Subject Shares (1) by will or other testamentary document or by intestacy, (2) to any investment fund or other entity controlled or managed by the Stockholder, (3) to any member of the Stockholder's immediate family or (4) to any trust for the direct or indirect benefit of the Stockholder or the immediate family of the Stockholder or otherwise for estate planning purposes; *provided*, that the applicable transferee shall have executed and delivered a voting agreement substantially identical to the Agreement. The Stockholder agrees that any Transfer of Subject Shares not permitted hereby shall be null and void and that any such prohibited Transfer shall be enjoined. If any voluntary or involuntary transfer of any Subject Shares covered hereby shall occur (including, but not limited to, a sale by the Stockholder's trustee in bankruptcy, or a sale to a purchaser at any creditor's or court sale), the transferee (which term, as used herein, shall include any and all transferees and subsequent transferees of the initial transferee) shall take and hold such Subject Shares subject to all of the restrictions, liabilities and rights under this Agreement, which shall continue in full force and effect.

(b) In the event of a stock dividend or distribution, or any change in the Subject Shares by reason of any stock dividend or distribution, split-up, recapitalization, combination, conversion, exchange of shares or the like, the term "Subject Shares" shall be deemed to refer to and include the Subject Shares as well as all such stock dividends and distributions and any securities into which or for which any or all of the Subject Shares may be changed or exchanged or which are received in such transaction. The Stockholder further agrees that, in the event Stockholder purchases or otherwise acquires beneficial or record ownership of or an interest in, or acquires the right to vote or share in the voting of, any additional Shares, in each case after the execution of this Agreement, the Stockholder shall deliver promptly to the Company and Parent written notice of such event, which notice shall state the number of additional Shares so acquired. The Stockholder agrees that any such additional Shares shall be subject to the terms of this Agreement, including all covenants, agreements, obligations, representations and warranties set forth herein as if those additional shares were owned by the Stockholder on the date of this Agreement.

SECTION 3.2 *Stockholder's Capacity*. All agreements and understandings made herein shall be made solely in the Stockholder's capacity as a holder of the Subject Shares and not in any other capacity.

SECTION 3.3 *Other Offers*. Except to the extent the Company is permitted to take such action pursuant to the Merger Agreement, neither the Stockholder (in the Stockholder's capacity as such), shall, nor shall the Stockholder authorize or permit any of its Representatives to, take any of the following actions: (a) solicit, initiate, knowingly encourage or knowingly facilitate an Acquisition Proposal, (b) furnish any non-public information regarding the Company to any Person in connection with or in response to an Acquisition Proposal, (c) engage in, enter into, continue or otherwise participate in any discussions or negotiations with any Person with respect to, or otherwise knowingly cooperate in any way with any Person (or any representative thereof) with respect to, any Acquisition Proposal, (d) approve, endorse or recommend or propose to approve, endorse or recommend, any Acquisition Proposal or (e) enter into any letter of intent or similar document or any Contract contemplating, approving, endorsing or recommending or proposing to approve, endorse or recommend, any Acquisition Transaction or accepting any Acquisition Proposal; *provided*, *however*, that none of the foregoing restrictions shall apply to the Stockholder's and its Representatives' interactions with Parent, Merger Sub, the Company and their respective subsidiaries and representatives. Without limiting the foregoing, it is understood that any violation of the foregoing restrictions by any Representatives of the Stockholder shall be deemed to be a breach of this *Section 3.3* by the Stockholder. The Stockholder shall, and shall use reasonable best efforts to cause its Representatives to, immediately cease any and all existing discussions or negotiations with any Persons conducted heretofore with respect to any Acquisition Proposal.

SECTION 3.4 *Communications*. During the Voting Period, the Stockholder shall not, and shall use its reasonable best efforts to cause its Representatives, if any, not to, directly or indirectly, make any press release, public announcement or other public communication that criticizes or disparages this Agreement or the Merger Agreement or any of the transactions contemplated hereby and thereby, without the prior written consent of Parent and the Company, *provided* that the foregoing shall not limit or affect any actions taken by the Stockholder (or any affiliated officer or director of Stockholder) that would be permitted to be taken by Stockholder pursuant to the Merger Agreement. The Stockholder hereby (a) consents to and authorizes the publication and disclosure by Parent, Merger Sub and the Company (including in any publicly filed documents relating to the Merger or any transaction contemplated by the Merger Agreement) of: (i) the Stockholder's identity; (ii) the Stockholder's beneficial ownership of the Subject Shares; (iii) this Agreement; and (iv) the nature of the Stockholder's commitments, arrangements and understandings under this Agreement, and any other information that Parent, Merger Sub or the Company determines to be necessary in any SEC disclosure document in connection with the Merger or any transactions contemplated by the Merger Agreement and (b) agrees as promptly as practicable to notify Parent, Merger Sub and the Company of any required corrections with respect to any written information supplied by the Stockholder specifically for use in any such disclosure document.

SECTION 3.5 *Voting Trusts*. The Stockholder agrees that it will not, nor will it permit any entity under its control to, deposit any of its Subject Shares in a voting trust or subject any of its Subject Shares to any arrangement with respect to the voting of such Subject Shares other than as provided herein.

SECTION 3.6 *Waiver of Appraisal Rights*. The Stockholder hereby irrevocably and unconditionally waives, and agrees not to assert, exercise or perfect (or attempt to exercise, assert or perfect) any rights of appraisal or rights to dissent from the Merger or quasi-appraisal rights that it may at any time have under applicable Laws, including Section 262 of the DGCL. The Stockholder agrees not to commence, join in, facilitate, assist or encourage, and agrees to take all actions necessary to opt out of any class in any class action with respect to, any claim, derivative or otherwise, against Parent, Merger Sub, the Company or any of their respective successors, directors or officers, (a) challenging the validity, binding nature or enforceability of, or seeking to enjoin the operation of, this Agreement or the Merger

Agreement, or (b) alleging a breach of any fiduciary duty of any Person in connection with the evaluation, negotiation, entry into or consummation of the Merger Agreement.

**ARTICLE IV**

**REPRESENTATIONS AND WARRANTIES OF STOCKHOLDER**

The Stockholder hereby represents and warrants to the Company as follows:

SECTION 4.1 *Due Authorization, etc*. The Stockholder is a natural person, corporation, limited partnership or limited liability company. If the Stockholder is a corporation, limited partnership or limited liability company, Stockholder is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction in which it is incorporated, organized or constituted. The Stockholder has all necessary power and authority to execute and deliver this Agreement, perform the Stockholder's obligations hereunder and to consummate the transactions contemplated hereby. The execution and delivery of this Agreement, the performance of the Stockholder's obligations hereunder and the consummation of the transactions contemplated hereby by the Stockholder have been duly authorized by all necessary action on the part of the Stockholder and no other proceedings on the part of the Stockholder are necessary to authorize this Agreement, or to consummate the transactions contemplated hereby. This Agreement has been duly executed and delivered by the Stockholder and (assuming the due authorization, execution and delivery by Parent and the Company) constitutes a valid and binding obligation of the Stockholder, enforceable against the Stockholder in accordance with its terms, except to the extent enforcement is limited by bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium and similar Laws of general applicability relating to or affecting creditors' rights and by general equitable principles.

SECTION 4.2 *Ownership of Shares*. *Schedule I* hereto sets forth opposite the Stockholder's name the Shares over which the Stockholder has sole record and beneficial ownership as of the date hereof. As of the date hereof, the Stockholder is the lawful owner of the Shares denoted as being owned by the Stockholder on *Schedule I* hereto, has the sole power to vote or cause to be voted such Shares and has the sole power to dispose of or cause to be disposed such Shares (other than, if Stockholder is a partnership or a limited liability company, the rights and interest of Persons that own partnership interests or units in Stockholder under the partnership agreement or operating agreement governing Stockholder and applicable partnership or limited liability company law, or if Stockholder is a married individual and resides in a state with community property laws, the community property interest of his or her spouse to the extent applicable under such community property laws, which spouse hereby consents to this Agreement by executing the spousal consent attached hereto). The Stockholder has, and will at all times up until the Expiration Time have, good and valid title to the Shares denoted as being owned by the Stockholder on *Schedule I* hereto, free and clear of any and all pledges, mortgages, liens, charges, proxies, voting agreements, encumbrances, adverse claims, options, security interests and demands of any nature or kind whatsoever, other than (a) those created by this Agreement, or (b) those existing under applicable securities laws. Without limiting the generality of the foregoing, no Person has any contractual or other right or obligation to purchase or otherwise acquire any of the Shares, and no Shares are subject to any proxy, voting trust or other agreement or arrangement with respect to the voting of the Shares except as provided hereunder.

SECTION 4.3 *No Conflicts*. (a) No filing with any Governmental Body, and no authorization, consent or approval of any other Person is necessary for the execution of this Agreement by the Stockholder and (b) none of the execution and delivery of this Agreement by the Stockholder, the performance of the Stockholder's obligations hereunder, the consummation by the Stockholder of the transactions contemplated hereby or compliance by the Stockholder with any of the provisions hereof shall (i) conflict with or result in any breach of the organizational documents of the Stockholder, (ii) result in, or give rise to, a violation or breach of or a default under any of the terms of any

material contract, understanding, agreement or other instrument or obligation to which the Stockholder is a party or by which the Stockholder or any of the Subject Shares or its assets may be bound or (iii) violate any applicable order, writ, injunction, decree, judgment, statute, rule or regulation, except for any of the foregoing as would not reasonably be expected to impair the Stockholder's ability to perform its obligations under this Agreement.

SECTION 4.4 *Finder's Fees*. No investment banker, broker, finder or other intermediary is entitled, whether directly or indirectly, to a fee, commission or other benefit from Parent, Merger Sub or the Company in respect of this Agreement based upon any Contract made by or on behalf of the Stockholder, solely in the Stockholder's capacity as a stockholder of the Company.

SECTION 4.5 *Reliance*. The Stockholder has had the opportunity to review the Merger Agreement and this Agreement with counsel of the Stockholder's own choosing. The Stockholder understands and acknowledges that the Company is entering into the Merger Agreement in reliance upon the Stockholder's execution, delivery and performance of this Agreement.

SECTION 4.6 *No Litigation*. As of the date of this Agreement, there is no Legal Proceeding pending or, to the knowledge of the Stockholder, threatened against the Stockholder that would reasonably be expected to impair the ability of the Stockholder to perform its obligations hereunder or consummate the transactions contemplated hereby.

**ARTICLE V**

**TERMINATION**

SECTION 5.1 *Termination*. This Agreement shall automatically terminate, and none of Parent, the Company or the Stockholder shall have any rights or obligations hereunder and this Agreement shall become null and void and have no effect upon the earliest to occur of: (a) the Effective Time; and (b) the valid termination of the Merger Agreement in accordance with its terms. The parties acknowledge that upon termination of this Agreement as permitted under and in accordance with the terms of this Agreement, Stockholder shall have no right to recover any claim with respect to any losses suffered by Stockholder in connection with such termination. Notwithstanding anything to the contrary herein, (i) nothing set forth in this *Section 5.1* shall relieve Stockholder from liability for any breach of this Agreement prior to termination hereof, and (ii) the provisions of this *Article V* and of *Article VI* shall survive the termination of this Agreement.

**ARTICLE VI**

**MISCELLANEOUS**

SECTION 6.1 *Further Actions*. Subject to the terms and conditions set forth in this Agreement, the Stockholder agrees to take any all actions and to do all things reasonably necessary to effectuate this Agreement. If the Stockholder is a married individual, his or her spouse shall deliver the spousal consent attached hereto unless such Stockholder can demonstrate to Parent's and the Company's reasonable satisfaction that his or her spouse does not have any community property interests in the Subject Shares.

SECTION 6.2 *Fees and Expenses.* Except as otherwise specifically provided herein, each party shall bear its own fees and expenses in connection with this Agreement and the transactions contemplated hereby.

SECTION 6.3 *Amendments, Waivers, etc*. This Agreement may not be amended except by an instrument in writing signed by all the parties hereto and specifically referencing this Agreement. The failure of any party to assert any rights or remedies shall not constitute a waiver of such rights or remedies.

SECTION 6.4 *Notices.* Any notice, request, instruction or other document required to be given hereunder shall be sufficient if in writing, and sent by confirmed electronic mail transmission of a "portable document format" (".pdf") attachment (*provided* that any notice received by electronic mail transmission or otherwise at the addressee's location on any business day after 5:00 p.m. (addressee's local time) shall be deemed to have been received at 9:00 a.m. (addressee's local time) on the next business day), by reliable overnight delivery service (with proof of service), or hand delivery, addressed as follows:

If to the Company, to

NeuroBo Pharmaceuticals, Inc.
177 Huntington Avenue, Suite 1700
Boston, MA 02115
Attn: President
Email:

with a copy to (which shall not constitute notice):

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
One Financial Center
Boston, MA 02111
Attention: William T. Whelan and Marc D. Mantell
Email:

If to Parent, to

Gemphire Therapeutics Inc.
17199 N. Laurel Park Drive, Suite 401
Livonia, MI 48152
Attn: President
Email:

with a copy to (which shall not constitute notice):

Honigman LLP
650 Trade Centre Way, Suite 200
Kalamazoo, MI 49002-0402
Attention: Phillip D. Torrence
Email:

If to the Stockholder, to the address or electronic mail address set forth on the signature pages hereto or to such other Person or address as any party shall specify by written notice so given.

SECTION 6.5 *Interpretation; Construction.* Headings of the Articles and Sections of this Agreement are for convenience of the parties only, and shall be given no substantive or interpretive effect whatsoever. Any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not be applied in the construction or interpretation of this Agreement. As used in this Agreement, the words "include" and "including," and variations thereof, shall not be deemed to be terms of limitation, but rather shall be deemed to be followed by the words "without limitation."

SECTION 6.6 *Severability.* The provisions of this Agreement shall be deemed severable and the invalidity or unenforceability of any provision shall not affect the validity or enforceability of the other provisions hereof. If any provision of this Agreement, or the application of such provision to any Person or any circumstance, is invalid or unenforceable (a) a suitable and equitable provision shall be substituted therefor in order to carry out, so far as may be valid and enforceable, the intent and purpose of such invalid or unenforceable provision and (b) the remainder of this Agreement and the

application of such provision to other Persons or circumstances shall not be affected by such invalidity or unenforceability, nor shall such invalidity or unenforceability affect the validity or enforceability of such provision, or the application of such provision, in any other jurisdiction.

SECTION 6.7 *Entire Agreement; Assignment.* This Agreement constitutes the entire agreement, and supersedes all other prior agreements and understandings, both written and oral, between the parties, or any of them, with respect to the subject matter hereof; *provided, however*, that, as between the Company and Parent, to the extent of any conflict between the Merger Agreement and this Agreement, the terms of the Merger Agreement shall control and supersede any such conflicting terms. Neither this Agreement nor any of the rights, interests or obligations hereunder shall be assigned by any of the parties hereto (whether by operation of law or otherwise) without the prior written consent of the other parties, except that, without consent, each of Parent and the Company may assign all or any of its rights and obligations hereunder to any of its Affiliates that assume the rights and obligations of such party under the Merger Agreement. Subject to the preceding two sentences, this Agreement will be binding upon, inure to the benefit of and be enforceable by the parties hereto and their respective successors and permitted assigns. Notwithstanding anything to the contrary set forth herein, the Stockholder agrees that this Agreement and the obligations hereunder shall be binding upon any Person to which record or beneficial ownership of the Stockholder's Subject Shares shall pass, whether by operation or law or otherwise, including the Stockholder's heirs, guardians, administrators or successors and assigns, and the Stockholder agrees to take all actions necessary to effect the foregoing.

SECTION 6.8 *Governing Law.* THIS AGREEMENT AND ALL QUESTIONS RELATING TO THE INTERPRETATION OR ENFORCEMENT OF THIS AGREEMENT SHALL BE DEEMED TO BE MADE IN AND IN ALL RESPECTS SHALL BE INTERPRETED, CONSTRUED AND GOVERNED BY AND IN ACCORDANCE WITH THE LAW OF THE STATE OF DELAWARE WITHOUT REGARD TO THE CONFLICTS OF LAW PRINCIPLES THEREOF TO THE EXTENT THAT SUCH PRINCIPLES WOULD DIRECT A MATTER TO ANOTHER JURISDICTION.

SECTION 6.9 *Specific Performance.* The Stockholder acknowledges that any breach of this Agreement would give rise to irreparable harm for which monetary damages would not be an adequate remedy and each of the Company and Parent shall be entitled to a decree of specific performance and to temporary, preliminary and permanent injunctive relief to prevent breaches or threatened breaches of any of the provisions of this Agreement, without the necessity of proving the inadequacy of monetary damages as a remedy, which shall be the sole and exclusive remedy for any such breach.

SECTION 6.10 *Submission to Jurisdiction.* The parties hereby irrevocably submit to the exclusive personal jurisdiction of the Court of Chancery of the State of Delaware, or, if the Chancery Court declines jurisdiction, the United States District Court for the District of Delaware or the courts of the State of Delaware solely in respect of the interpretation and enforcement of the provisions of this Agreement and hereby waive, and agree not to assert, as a defense in any action, suit or proceeding for the interpretation or enforcement hereof, that it is not subject thereto or that such action, suit or proceeding may not be brought or is not maintainable in said courts or that the venue thereof may not be appropriate or that this Agreement may not be enforced in or by such courts, and the parties hereto irrevocably agree that all claims relating to such action, suit or proceeding shall be heard and determined in such courts. The parties hereby consent to and grant any such court jurisdiction over the person of such parties and, to the extent permitted by law, over the subject matter of such dispute and agree that mailing of process or other papers in connection with any such action or proceeding in the manner provided in *Section 6.4* or in such other manner as may be permitted by applicable Laws shall be valid and sufficient service thereof.

SECTION 6.11 *Waiver of Jury Trial.* EACH PARTY ACKNOWLEDGES AND AGREES THAT ANY CONTROVERSY WHICH MAY ARISE UNDER THIS AGREEMENT IS LIKELY TO

INVOLVE COMPLICATED AND DIFFICULT ISSUES, AND THEREFORE EACH SUCH PARTY HEREBY IRREVOCABLY AND UNCONDITIONALLY WAIVES ANY RIGHT SUCH PARTY MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LITIGATION DIRECTLY OR INDIRECTLY ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT. EACH PARTY CERTIFIES AND ACKNOWLEDGES THAT (a) NO REPRESENTATIVE, AGENT OR ATTORNEY OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT, IN THE EVENT OF LITIGATION, SEEK TO ENFORCE THE FOREGOING WAIVER, (b) EACH PARTY UNDERSTANDS AND HAS CONSIDERED THE IMPLICATIONS OF THIS WAIVER, (c) EACH PARTY MAKES THIS WAIVER VOLUNTARILY, AND (d) EACH PARTY HAS BEEN INDUCED TO ENTER INTO THIS AGREEMENT BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS *SECTION 6.11*.

SECTION 6.12 *Counterparts.* This Agreement may be executed in two or more counterparts (including by facsimile transmission or other means of electronic transmission, such as by electronic mail in "pdf" form), each of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument, and shall become effective when one or more counterparts have been signed by each of the parties and delivered (by facsimile or otherwise) to the other parties.

(Signature Page Follows)

IN WITNESS WHEREOF, the Company, Parent and the Stockholder have caused this Agreement to be duly executed as of the day and year first above written.

**NEUROBO PHARMACEUTICALS, INC.**

By:

Name:
Title:

**GEMPHIRE THERAPEUTICS INC.**

By:

Name:
Title:

**STOCKHOLDER**

By:

Name:
Title:

Address:

Electronic Mail Address:

SPOUSAL CONSENT

I , spouse of , having the legal capacity, power and authority to do so, hereby confirm that I have read and approve the foregoing the Voting Agreement (the "***Agreement***"). In consideration of the terms and conditions as set forth in the Agreement, I hereby appoint my spouse (regardless of whether my spouse remains as such) as my attorney in fact with respect to the exercise of any rights and obligations under the Agreement, and agree to be bound by the provisions of the Agreement insofar as I may have any rights or obligations in the Agreement under the community property laws of the State of California or similar laws relating to marital or community property.

_____

Name:
Date:

[*Signature Page to Voting Agreement*]

**Exhibit A**

***Written Consent***

See attached.

**Schedule I**

***Ownership of Shares***

| Name and Address of Stockholder | Number of Shares of Common Stock | Number of Shares of Preferred Stock |
|---|---|---|
| [·] | [·] | [·] |

**Exhibit B-2**

**Form of Parent Voting Agreement**

**VOTING AGREEMENT**

This VOTING AGREEMENT (this "***Agreement***") is entered into as of July , 2019, among Gemphire Therapeutics Inc., a Delaware corporation ("***Parent***"), NeuroBo Pharmaceuticals, Inc., a Delaware corporation (the "***Company***"), and the undersigned stockholder (the "***Stockholder***") of Parent.

WHEREAS, as of the date hereof, the Stockholder is the sole record and beneficial owner of and has the sole power to vote (or to direct the voting of) the number of shares of common stock, par value $0.001 per share (the "***Common Stock***"), of Parent, set forth opposite the Stockholder's name on *Schedule I* hereto (such Common Stock together with any other shares of Parent ("***Shares***") the voting power of which is acquired by such Stockholder during Voting Period (defined below), are collectively referred to herein as the "***Subject Shares***");

WHEREAS, the Company, Parent, and GR Merger Sub Inc., a Delaware corporation and a wholly-owned subsidiary of Parent ("***Merger Sub***"), are concurrently entering into an Agreement and Plan of Merger and Reorganization, dated on or about the date hereof (as amended from time to time, the "***Merger Agreement***"), pursuant to which Merger Sub shall be merged with and into the Company, with the Company continuing as the surviving corporation thereafter (the "***Merger***");

WHEREAS, the adoption of the Merger Agreement and the transactions contemplated thereby requires the affirmative vote of the holders of a majority of the shares of Common Stock outstanding on the applicable record date and entitled to vote thereon; and

WHEREAS, as an inducement to the Company's and Parent's willingness to enter into the Merger Agreement and consummate the transactions contemplated thereby, transactions from which the Stockholder believes it will derive substantial benefits through its ownership interest in the combined company, the Stockholder is entering into this Agreement.

NOW, THEREFORE, in consideration of the foregoing and the respective representations, warranties, covenants and agreements set forth herein, the parties agree as follows:

**ARTICLE I**

**DEFINITIONS**

SECTION 1.1 *Capitalized Terms*. For purposes of this Agreement, capitalized terms used and not defined herein shall have the respective meanings ascribed to them in the Merger Agreement.

**ARTICLE II**

**VOTING AGREEMENT AND IRREVOCABLE PROXY**

SECTION 2.1 *Agreement to Vote*. The Stockholder hereby agrees that, during the Voting Period, and at any duly called meeting of the stockholders of Parent (or any adjournment or postponement thereof), or in any other circumstances (including action by written consent of stockholders in lieu of a meeting) upon which a vote, adoption or other approval or consent with respect to the adoption of the Merger Agreement or the approval of the Merger and any of the transactions contemplated thereby is sought, the Stockholder shall, if a meeting is held, appear at the meeting, in person or by proxy, and shall provide a written consent or vote (or cause to be voted), in person or by proxy, all its Subject Shares, in each case (a) in favor of (i) any proposal to adopt and approve or reapprove the Merger Agreement and the transactions contemplated thereby, including without limitation (A) the amendment of Parent's certificate of incorporation to effect the Reverse Split, (B) the amendment to Parent's certificate of incorporation to change the name of Parent to "NeuroBo Pharmaceuticals, Inc.", (C) the

issuance of shares of Parent Common Stock to the Company's stockholders in connection with the Contemplated Transactions and the change of control of Parent resulting from the Merger pursuant to the Nasdaq rules, (D) the adoption and approval of the 2019 Plan, and (E) any other proposal in connection with, or related to, the consummation of the Merger for which the Parent Board has recommended that Parent's stockholders vote in favor and (ii) waiving any notice that may have been or may be required relating to the Merger or any of the other transactions contemplated by the Merger Agreement and (b) against (i) any Acquisition Proposal and any action in furtherance of any such Acquisition Proposal, and (ii) any action, proposal, transaction or agreement that, to the knowledge of the Stockholder, would reasonably be expected to result in a material breach of any covenant, representation or warranty or any other obligation or agreement of the Stockholder under this Agreement. As used herein, the term "***Expiration Time***" shall mean the earliest occurrence of (x) the Effective Time and (y) the date and time of the valid termination of the Merger Agreement in accordance with its terms, and the term "***Voting Period***" shall mean such period of time between the date hereof and the Expiration Time.

SECTION 2.2 *Grant of Irrevocable Proxy*. The Stockholder hereby appoints Parent and any designee of Parent, and each of them individually, as the Stockholder's proxy, with full power of substitution and resubstitution, to vote, including by executing written consents, during the Voting Period with respect to any and all of the Subject Shares on the matters and in the manner specified in *Section 2.1*. The Stockholder shall take all further action or execute such other instruments as may be necessary to effectuate the intent of any such proxy. The Stockholder affirms that the irrevocable proxy given by it hereby with respect to the Merger Agreement and the transactions contemplated thereby is given to Parent by the Stockholder to secure the performance of the obligations of the Stockholder under this Agreement. It is agreed that Parent (and its officers on behalf of Parent) will use the irrevocable proxy that is granted by the Stockholder hereby only in accordance with applicable Laws and that, to the extent Parent (and its officers on behalf of Parent) uses such irrevocable proxy, it will only vote (or sign written consents in respect of) the Subject Shares subject to such irrevocable proxy with respect to the matters specified in, and in accordance with the provisions of, *Section 2.1*.

SECTION 2.3 *Nature of Irrevocable Proxy*. The proxy granted pursuant to *Section 2.2* to Parent by the Stockholder shall be irrevocable during the term of this Agreement, shall be deemed to be coupled with an interest sufficient in law to support an irrevocable proxy and shall revoke any and all prior proxies or powers of attorney granted by the Stockholder and no subsequent proxy or power of attorney shall be given or written consent executed (and if given or executed, shall not be effective) by the Stockholder with respect thereto. The proxy that may be granted hereunder shall terminate upon the termination of this Agreement, but shall survive the death or incapacity of the Stockholder and any obligation of the Stockholder under this Agreement shall be binding upon the heirs, personal representatives and successors of the Stockholder.

**ARTICLE III**

**COVENANTS**

SECTION 3.1 *Subject Shares*.

(a) The Stockholder agrees that (i) from the date hereof until the Effective Time, it shall not, and shall not commit or agree to, without the prior written consent of Parent and the Company, directly or indirectly, whether by merger, consolidation or otherwise, offer for sale, sell (including short sales), transfer, tender, pledge, encumber, assign or otherwise dispose of (including by gift or by operation of law) (collectively, a "***Transfer***"), or enter into any contract, option, derivative, hedging or other agreement or arrangement or understanding (including any profit-sharing arrangement) with respect to, or consent to or permit, a Transfer of, any or all of the Subject Shares or any interest therein; and (ii) during the Voting Period, it shall not, and shall not commit or agree to, without the prior written

consent of Parent and the Company, (A) grant any proxies or powers of attorney with respect to any or all of the Subject Shares or agree to vote (or sign written consents in respect of) the Subject Shares on any matter or divest itself of any voting rights in the Subject Shares, or (B) take any action that would have the effect of preventing or disabling the Stockholder from performing its obligations under this Agreement. Notwithstanding the foregoing, the Stockholder may, at any time, Transfer its Subject Shares (1) by will or other testamentary document or by intestacy, (2) to any investment fund or other entity controlled or managed by the Stockholder, (3) to any member of the Stockholder's immediate family or (4) to any trust for the direct or indirect benefit of the Stockholder or the immediate family of the Stockholder or otherwise for estate planning purposes; *provided*, that the applicable transferee shall have executed and delivered a voting agreement substantially identical to the Agreement. The Stockholder agrees that any Transfer of Subject Shares not permitted hereby shall be null and void and that any such prohibited Transfer shall be enjoined. If any voluntary or involuntary transfer of any Subject Shares covered hereby shall occur (including, but not limited to, a sale by the Stockholder's trustee in bankruptcy, or a sale to a purchaser at any creditor's or court sale), the transferee (which term, as used herein, shall include any and all transferees and subsequent transferees of the initial transferee) shall take and hold such Subject Shares subject to all of the restrictions, liabilities and rights under this Agreement, which shall continue in full force and effect.

(b) In the event of a stock dividend or distribution, or any change in the Subject Shares by reason of any stock dividend or distribution, split-up, recapitalization, combination, conversion, exchange of shares or the like, the term "Subject Shares" shall be deemed to refer to and include the Subject Shares as well as all such stock dividends and distributions and any securities into which or for which any or all of the Subject Shares may be changed or exchanged or which are received in such transaction. The Stockholder further agrees that, in the event Stockholder purchases or otherwise acquires beneficial or record ownership of or an interest in, or acquires the right to vote or share in the voting of, any additional Shares, in each case after the execution of this Agreement, the Stockholder shall deliver promptly to Parent and the Company written notice of such event, which notice shall state the number of additional Shares so acquired. The Stockholder agrees that any such additional Shares shall be subject to the terms of this Agreement, including all covenants, agreements, obligations, representations and warranties set forth herein as if those additional shares were owned by the Stockholder on the date of this Agreement.

SECTION 3.2 *Stockholder's Capacity*. All agreements and understandings made herein shall be made solely in the Stockholder's capacity as a holder of the Subject Shares and not in any other capacity.

SECTION 3.3 *Other Offers*. Except to the extent Parent is permitted to take such action pursuant to the Merger Agreement, neither the Stockholder (in the Stockholder's capacity as such), shall, nor shall the Stockholder authorize or permit any of its Representatives to, take any of the following actions: (a) solicit, initiate, knowingly encourage or knowingly facilitate an Acquisition Proposal, (b) furnish any non-public information regarding Parent to any Person in connection with or in response to an Acquisition Proposal, (c) engage in, enter into, continue or otherwise participate in any discussions or negotiations with any Person with respect to, or otherwise knowingly cooperate in any way with any Person (or any representative thereof) with respect to, any Acquisition Proposal, (d) approve, endorse or recommend or propose to approve, endorse or recommend, any Acquisition Proposal or (e) enter into any letter of intent or similar document or any Contract contemplating, approving, endorsing or recommending or proposing to approve, endorse or recommend, any Acquisition Transaction or accepting any Acquisition Proposal; *provided*, however, that none of the foregoing restrictions shall apply to the Stockholder's and its Representatives' interactions with Parent, Merger Sub, the Company and their respective subsidiaries and representatives. Without limiting the foregoing, it is understood that any violation of the foregoing restrictions by any Representatives of the Stockholder shall be deemed to be a breach of this *Section 3.3* by the Stockholder. The Stockholder shall, and shall use reasonable best efforts to cause its Representatives to, immediately cease any and all existing

discussions or negotiations with any Persons conducted heretofore with respect to any Acquisition Proposal.

SECTION 3.4 *Communications*. During the Voting Period, the Stockholder shall not, and shall use its reasonable best efforts to cause its Representatives, if any, not to, directly or indirectly, make any press release, public announcement or other public communication that criticizes or disparages this Agreement or the Merger Agreement or any of the transactions contemplated hereby and thereby, without the prior written consent of Parent and the Company, *provided* that the foregoing shall not limit or affect any actions taken by the Stockholder (or any affiliated officer or director of Stockholder) that would be permitted to be taken by Stockholder pursuant to the Merger Agreement. The Stockholder hereby (a) consents to and authorizes the publication and disclosure by Parent, Merger Sub and the Company (including in any publicly filed documents relating to the Merger or any transaction contemplated by the Merger Agreement) of: (i) the Stockholder's identity; (ii) the Stockholder's beneficial ownership of the Subject Shares; (iii) this Agreement; and (iv) the nature of the Stockholder's commitments, arrangements and understandings under this Agreement, and any other information that Parent, Merger Sub or the Company determines to be necessary in any SEC disclosure document in connection with the Merger or any transactions contemplated by the Merger Agreement and (b) agrees as promptly as practicable to notify Parent, Merger Sub and the Company of any required corrections with respect to any written information supplied by the Stockholder specifically for use in any such disclosure document.

SECTION 3.5 *Voting Trusts*. The Stockholder agrees that it will not, nor will it permit any entity under its control to, deposit any of its Subject Shares in a voting trust or subject any of its Subject Shares to any arrangement with respect to the voting of such Subject Shares other than as provided herein.

SECTION 3.6 *Waiver of Appraisal Rights*. The Stockholder hereby irrevocably and unconditionally waives, and agrees not to assert, exercise or perfect (or attempt to exercise, assert or perfect) any rights of appraisal or rights to dissent from the Merger or quasi-appraisal rights that it may at any time have under applicable Laws, including Section 262 of the DGCL. The Stockholder agrees not to commence, join in, facilitate, assist or encourage, and agrees to take all actions necessary to opt out of any class in any class action with respect to, any claim, derivative or otherwise, against Parent, Merger Sub, the Company or any of their respective successors, directors or officers, (a) challenging the validity, binding nature or enforceability of, or seeking to enjoin the operation of, this Agreement or the Merger Agreement, or (b) alleging a breach of any fiduciary duty of any Person in connection with the evaluation, negotiation, entry into or consummation of the Merger Agreement.

**ARTICLE IV**

**REPRESENTATIONS AND WARRANTIES OF STOCKHOLDER**

The Stockholder hereby represents and warrants to Parent as follows:

SECTION 4.1 *Due Authorization, etc*. The Stockholder is a natural person, corporation, limited partnership or limited liability company. If the Stockholder is a corporation, limited partnership or limited liability company, Stockholder is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction in which it is incorporated, organized or constituted. The Stockholder has all necessary power and authority to execute and deliver this Agreement, perform the Stockholder's obligations hereunder and to consummate the transactions contemplated hereby. The execution and delivery of this Agreement, the performance of the Stockholder's obligations hereunder and the consummation of the transactions contemplated hereby by the Stockholder have been duly authorized by all necessary action on the part of the Stockholder and no other proceedings on the part of the Stockholder are necessary to authorize this Agreement, or to consummate the transactions contemplated hereby. This Agreement has been duly executed and delivered by the Stockholder and

(assuming the due authorization, execution and delivery by Parent and the Company) constitutes a valid and binding obligation of the Stockholder, enforceable against the Stockholder in accordance with its terms, except to the extent enforcement is limited by bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium and similar Laws of general applicability relating to or affecting creditors' rights and by general equitable principles.

SECTION 4.2 *Ownership of Shares*. *Schedule I* hereto sets forth opposite the Stockholder's name the Shares over which the Stockholder has sole record and beneficial ownership as of the date hereof. As of the date hereof, the Stockholder is the lawful owner of the Shares denoted as being owned by the Stockholder on *Schedule I* hereto, has the sole power to vote or cause to be voted such Shares and has the sole power to dispose of or cause to be disposed such Shares (other than, if Stockholder is a partnership or a limited liability company, the rights and interest of Persons that own partnership interests or units in Stockholder under the partnership agreement or operating agreement governing Stockholder and applicable partnership or limited liability company law, or if Stockholder is a married individual and resides in a state with community property laws, the community property interest of his or her spouse to the extent applicable under such community property laws, which spouse hereby consents to this Agreement by executing the spousal consent attached hereto). The Stockholder has, and will at all times up until the Expiration Time have, good and valid title to the Shares denoted as being owned by the Stockholder on *Schedule I* hereto, free and clear of any and all pledges, mortgages, liens, charges, proxies, voting agreements, encumbrances, adverse claims, options, security interests and demands of any nature or kind whatsoever, other than (a) those created by this Agreement, or (b) those existing under applicable securities laws. Without limiting the generality of the foregoing, no Person has any contractual or other right or obligation to purchase or otherwise acquire any of the Shares, and no Shares are subject to any proxy, voting trust or other agreement or arrangement with respect to the voting of the Shares except as provided hereunder.

SECTION 4.3 *No Conflicts*. (a) No filing with any Governmental Body, and no authorization, consent or approval of any other Person is necessary for the execution of this Agreement by the Stockholder and (b) none of the execution and delivery of this Agreement by the Stockholder, the performance of the Stockholder's obligations hereunder, the consummation by the Stockholder of the transactions contemplated hereby or compliance by the Stockholder with any of the provisions hereof shall (i) conflict with or result in any breach of the organizational documents of the Stockholder, (ii) result in, or give rise to, a violation or breach of or a default under any of the terms of any material contract, understanding, agreement or other instrument or obligation to which the Stockholder is a party or by which the Stockholder or any of the Subject Shares or its assets may be bound or (iii) violate any applicable order, writ, injunction, decree, judgment, statute, rule or regulation, except for any of the foregoing as would not reasonably be expected to impair the Stockholder's ability to perform its obligations under this Agreement.

SECTION 4.4 *Finder's Fees*. No investment banker, broker, finder or other intermediary is entitled, whether directly or indirectly, to a fee, commission or other benefit from Parent, Merger Sub or the Company in respect of this Agreement based upon any Contract made by or on behalf of the Stockholder, solely in the Stockholder's capacity as a stockholder of Parent.

SECTION 4.5 *Reliance*. The Stockholder has had the opportunity to review the Merger Agreement and this Agreement with counsel of the Stockholder's own choosing. The Stockholder understands and acknowledges that Parent is entering into the Merger Agreement in reliance upon the Stockholder's execution, delivery and performance of this Agreement.

SECTION 4.6 *No Litigation*. As of the date of this Agreement, there is no Legal Proceeding pending or, to the knowledge of the Stockholder, threatened against the Stockholder that would reasonably be expected to impair the ability of the Stockholder to perform its obligations hereunder or consummate the transactions contemplated hereby.

**ARTICLE V**

**TERMINATION**

SECTION 5.1 *Termination*. This Agreement shall automatically terminate, and none of Parent, the Company or the Stockholder shall have any rights or obligations hereunder and this Agreement shall become null and void and have no effect upon the earliest to occur of: (a) the Effective Time; and (b) the valid termination of the Merger Agreement in accordance with its terms. The parties acknowledge that upon termination of this Agreement as permitted under and in accordance with the terms of this Agreement, Stockholder shall have no right to recover any claim with respect to any losses suffered by Stockholder in connection with such termination. Notwithstanding anything to the contrary herein, (i) nothing set forth in this *Section 5.1* shall relieve Stockholder from liability for any breach of this Agreement prior to termination hereof, and (ii) the provisions of this *Article V* and of *Article VI* shall survive the termination of this Agreement.

**ARTICLE VI**

**MISCELLANEOUS**

SECTION 6.1 *Further Actions*. Subject to the terms and conditions set forth in this Agreement, the Stockholder agrees to take any all actions and to do all things reasonably necessary to effectuate this Agreement. If the Stockholder is a married individual, his or her spouse shall deliver the spousal consent attached hereto unless such Stockholder can demonstrate to Parent's and the Company's reasonable satisfaction that his or her spouse does not have any community property interests in the Subject Shares.

SECTION 6.2 *Fees and Expenses*. Except as otherwise specifically provided herein, each party shall bear its own fees expenses in connection with this Agreement and the transactions contemplated hereby.

SECTION 6.3 *Amendments, Waivers, etc*. This Agreement may not be amended except by an instrument in writing signed by all the parties hereto and specifically referencing this Agreement. The failure of any party to assert any rights or remedies shall not constitute a waiver of such rights or remedies.

SECTION 6.4 *Notices*. Any notice, request, instruction or other document required to be given hereunder shall be sufficient if in writing, and sent by confirmed electronic mail transmission of a "portable document format" (".pdf") attachment (*provided* that any notice received by electronic mail transmission or otherwise at the addressee's location on any business day after 5:00 p.m. (addressee's local time) shall be deemed to have been received at 9:00 a.m. (addressee's local time) on the next business day), by reliable overnight delivery service (with proof of service), or hand delivery, addressed as follows:

If to Parent, to

Gemphire Therapeutics Inc.
17199 N. Laurel Park Drive, Suite 401
Livonia, MI 48152
Attn: President
Email:

with a copy to (which shall not constitute notice):

Honigman LLP
650 Trade Centre Way, Suite 200
Kalamazoo, MI 49002-0402
Attention: Phillip D. Torrence
Email:

If to the Company, to

NeuroBo Pharmaceuticals, Inc.
177 Huntington Avenue, Suite 170
Boston, MA 02115
Attn: President
Email:

with a copy to (which shall not constitute notice):

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
One Financial Center
Boston, MA 02111
Attention: William T. Whelan and Marc D. Mantell
Email:

If to the Stockholder, to the address or electronic mail address set forth on the signature pages hereto, or to such other Person or address as any party shall specify by written notice so given.

SECTION 6.5 *Interpretation; Construction.* Headings of the Articles and Sections of this Agreement are for convenience of the parties only, and shall be given no substantive or interpretive effect whatsoever. Any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not be applied in the construction or interpretation of this Agreement. As used in this Agreement, the words "include" and "including," and variations thereof, shall not be deemed to be terms of limitation, but rather shall be deemed to be followed by the words "without limitation."

SECTION 6.6 *Severability.* The provisions of this Agreement shall be deemed severable and the invalidity or unenforceability of any provision shall not affect the validity or enforceability of the other provisions hereof. If any provision of this Agreement, or the application of such provision to any Person or any circumstance, is invalid or unenforceable (a) a suitable and equitable provision shall be substituted therefor in order to carry out, so far as may be valid and enforceable, the intent and purpose of such invalid or unenforceable provision and (b) the remainder of this Agreement and the application of such provision to other Persons or circumstances shall not be affected by such invalidity or unenforceability, nor shall such invalidity or unenforceability affect the validity or enforceability of such provision, or the application of such provision, in any other jurisdiction.

SECTION 6.7 *Entire Agreement; Assignment.* This Agreement constitutes the entire agreement, and supersedes all other prior agreements and understandings, both written and oral, between the parties, or any of them, with respect to the subject matter hereof; *provided*, *however*, that, as between the Company and Parent, to the extent of any conflict between the Merger Agreement and this Agreement, the terms of the Merger Agreement shall control and supersede any such conflicting terms. Neither this Agreement nor any of the rights, interests or obligations hereunder shall be assigned by any of the parties hereto (whether by operation of law or otherwise) without the prior written consent of the other parties, except that, without consent, each of Parent and the Company may assign all or any of its rights and obligations hereunder to any of its Affiliates that assume the rights and obligations of such party under the Merger Agreement. Subject to the preceding two sentences, this Agreement will be binding upon, inure to the benefit of and be enforceable by the parties hereto and their respective successors and permitted assigns. Notwithstanding anything to the contrary set forth herein, the Stockholder agrees that this Agreement and the obligations hereunder shall be binding upon any Person to which record or beneficial ownership of the Stockholder's Subject Shares shall pass, whether by operation or law or otherwise, including the Stockholder's heirs, guardians, administrators or successors and assigns, and the Stockholder agrees to take all actions necessary to effect the foregoing.

SECTION 6.8 *Governing Law.* THIS AGREEMENT AND ALL QUESTIONS RELATING TO THE INTERPRETATION OR ENFORCEMENT OF THIS AGREEMENT SHALL BE DEEMED

TO BE MADE IN AND IN ALL RESPECTS SHALL BE INTERPRETED, CONSTRUED AND GOVERNED BY AND IN ACCORDANCE WITH THE LAW OF THE STATE OF DELAWARE WITHOUT REGARD TO THE CONFLICTS OF LAW PRINCIPLES THEREOF TO THE EXTENT THAT SUCH PRINCIPLES WOULD DIRECT A MATTER TO ANOTHER JURISDICTION.

SECTION 6.9 *Specific Performance*. The Stockholder acknowledges that any breach of this Agreement would give rise to irreparable harm for which monetary damages would not be an adequate remedy and each of the Company and Parent shall be entitled to a decree of specific performance and to temporary, preliminary and permanent injunctive relief to prevent breaches or threatened breaches of any of the provisions of this Agreement, without the necessity of proving the inadequacy of monetary damages as a remedy, which shall be the sole and exclusive remedy for any such breach.

SECTION 6.10 *Submission to Jurisdiction.* The parties hereby irrevocably submit to the exclusive personal jurisdiction of the Court of Chancery of the State of Delaware, or, if the Chancery Court declines jurisdiction, the United States District Court for the District of Delaware or the courts of the State of Delaware solely in respect of the interpretation and enforcement of the provisions of this Agreement and hereby waive, and agree not to assert, as a defense in any action, suit or proceeding for the interpretation or enforcement hereof, that it is not subject thereto or that such action, suit or proceeding may not be brought or is not maintainable in said courts or that the venue thereof may not be appropriate or that this Agreement may not be enforced in or by such courts, and the parties hereto irrevocably agree that all claims relating to such action, suit or proceeding shall be heard and determined in such courts. The parties hereby consent to and grant any such court jurisdiction over the person of such parties and, to the extent permitted by law, over the subject matter of such dispute and agree that mailing of process or other papers in connection with any such action or proceeding in the manner provided in *Section 6.4* or in such other manner as may be permitted by applicable Laws shall be valid and sufficient service thereof.

SECTION 6.11 *Waiver of Jury Trial.* EACH PARTY ACKNOWLEDGES AND AGREES THAT ANY CONTROVERSY WHICH MAY ARISE UNDER THIS AGREEMENT IS LIKELY TO INVOLVE COMPLICATED AND DIFFICULT ISSUES, AND THEREFORE EACH SUCH PARTY HEREBY IRREVOCABLY AND UNCONDITIONALLY WAIVES ANY RIGHT SUCH PARTY MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LITIGATION DIRECTLY OR INDIRECTLY ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT. EACH PARTY CERTIFIES AND ACKNOWLEDGES THAT (a) NO REPRESENTATIVE, AGENT OR ATTORNEY OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT, IN THE EVENT OF LITIGATION, SEEK TO ENFORCE THE FOREGOING WAIVER, (b) EACH PARTY UNDERSTANDS AND HAS CONSIDERED THE IMPLICATIONS OF THIS WAIVER, (c) EACH PARTY MAKES THIS WAIVER VOLUNTARILY, AND (d) EACH PARTY HAS BEEN INDUCED TO ENTER INTO THIS AGREEMENT BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS *SECTION 6.11*.

SECTION 6.12 *Counterparts.* This Agreement may be executed in two or more counterparts (including by facsimile transmission or other means of electronic transmission, such as by electronic mail in "pdf" form), each of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument, and shall become effective when one or more counterparts have been signed by each of the parties and delivered (by facsimile or otherwise) to the other parties.

IN WITNESS WHEREOF, Parent, the Company and the Stockholder have caused this Agreement to be duly executed as of the day and year first above written.

**GEMPHIRE THERAPEUTICS INC.**

By:

Name:
Title:

**NEUROBO PHARMACEUTICALS, INC.**

By:

Name:
Title:

**[STOCKHOLDER]**

By:

Name:
Title:

Address:

Electronic Mail Address:

SPOUSAL CONSENT

I , spouse of , having the legal capacity, power and authority to do so, hereby confirm that I have read and approve the foregoing the Voting Agreement (the "***Agreement***"). In consideration of the terms and conditions as set forth in the Agreement, I hereby appoint my spouse (regardless of whether or not my spouse remains as such) as my attorney in fact with respect to the exercise of any rights and obligations under the Agreement, and agree to be bound by the provisions of the Agreement insofar as I may have any rights or obligations in the Agreement under the community property laws of the State of California or similar laws relating to marital or community property.

_____

Name:
Date:

[*Signature Page to Voting Agreement*]

**Schedule I**

***Ownership of Common Stock***

| Name and Address of Stockholder | Number of Shares of Common Stock |
| --- | --- |
| | |
| | |

**Exhibit C**

**Form of Contingent Value Right Agreement**

**CONTINGENT VALUE RIGHTS AGREEMENT**

This CONTINGENT VALUE RIGHTS AGREEMENT (this "**Agreement**"), dated as of , 2019 (the "**Effective Date**"), is entered into by and among Gemphire Therapeutics Inc., a Delaware corporation ("**Parent**"), Grand Rapids Holders' Representative, LLC, as representative of the Holders (the "**Holders' Representative**"), and Computershare Inc., as Rights Agent.

**RECITALS**

WHEREAS, Parent, GR Merger Sub Inc., a Delaware corporation ("**Sub**"), and NeuroBo Pharmaceuticals, Inc., a Delaware corporation (the "**Company**"), have entered into an Agreement and Plan of Merger and Reorganization, dated as of July 24, 2019 (as it may be amended or supplemented from time to time pursuant to the terms thereof, the "**Merger Agreement**"), pursuant to which Sub will merge with and into the Company, with the Company surviving the Merger as a subsidiary of Parent; and

WHEREAS, pursuant to the Merger Agreement, Parent has agreed to provide to the holders of record of Parent's common stock, par value $0.001 per share ("**Parent Common Stock**"), immediately prior to the Effective Time the right to receive certain contingent cash payments, on the terms and subject to the conditions hereinafter described;

NOW, THEREFORE, in consideration of the foregoing and the consummation of the transactions referred to above, Parent and Rights Agent agree, for the equal and proportionate benefit of all Holders (as hereinafter defined), as follows:

**1. DEFINITIONS; CERTAIN RULES OF CONSTRUCTION.** Capitalized terms used but not otherwise defined herein will have the meanings ascribed to them in the Merger Agreement. As used in this Agreement, the following terms will have the following meanings:

**1.1** "**Acquiror**" and "**Acquisition**" have the respective meanings set forth in Section 7.3(a).

**1.2** "**Acting Holders**" means, at the time of determination, Holders of at least a majority of the outstanding CVRs.

**1.3** "**Affiliate**" means, with respect to any Person, any other Person that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such Person. The term "control" (including the terms "controlled by" and "under common control with") means the possession, directly or indirectly, of more than fifty percent (50%) of the voting securities entitled to vote for directors (or similar officials) of a Person or the possession, by contract or otherwise, of the authority to direct the management and policies of a Person.

**1.4** "**Assignee**" has the meaning set forth in Section 7.3(a).

**1.5** "**Beijing SL**" has the meaning set forth in Section 4.3.

**1.6** "**Beijing SL Transaction**" has the meaning set forth in Section 4.3.

**1.7** "**Board of Directors**" means the board of directors of Parent.

**1.8** "**Board Resolution**" means a copy of a resolution certified by the secretary or an assistant secretary of Parent to have been duly adopted by the Board of Directors and to be in full force and effect on the date of such certification, and delivered to the Rights Agent.

**1.9** "**Business Day**" means any day other than a Saturday, Sunday or other day on which banks in New York, New York are authorized or obligated by Law to be closed.

**1.10 "Covenant End Date"** has the meaning set forth in Section 4.3.

**1.11** "**CVRs**" means the rights of Holders to receive contingent cash payments pursuant to the Merger Agreement and this Agreement.

**1.12** "**CVR Payment**" has the meaning set forth in Section 2.4(d).

**1.13** "**CVR Payment Period**" means a calendar quarter, prior to the expiration of the CVR Term, in which a Gemcabene Deal has closed.

**1.14** "**CVR Payment Statement**" means, for a given CVR Payment Period during the CVR Term, a written statement of Parent, setting forth in reasonable detail, (a) Net Proceeds for such CVR Payment Period; (b) a description of the Gross Consideration received during such CVR Payment Period from a Gemcabene Deal, (d) a delineation and calculation of the Permitted Deductions applicable to such CVR Payment Period, and (e) to the extent that any Gross Consideration or Permitted Deduction is recorded in any currency other than United States dollars during such CVR Payment Period, the exchange rates used for conversion of such currency into United States dollars.

**1.15** "**CVR Register**" has the meaning set forth in Section 2.3(b).

**1.16** "**CVR Shortfall**" has the meaning set forth in Section 4.7(b).

**1.17** "**CVR Term**" means the period beginning on the Closing and ending fifteen (15) years thereafter.

**1.18** "**DTC**" means The Depository Trust Company or any successor thereto.

**1.19** "**FDA**" has the meaning set forth in Section 4.3.

**1.20** "**Gemcabene Deal**" means any transaction (a) that is entered into during the period beginning on the Closing and ending ten (10) years thereafter and (b) pursuant to which Parent or its Affiliate grants, sells or otherwise transfers to a Third Party any rights to the Gemcabene Technology or any rights to research, develop or commercialize the Gemcabene Technology, including a license, option, or sale of assets with respect to the Gemcabene Technology. For clarity, the sale of all or substantially all of Parent's or an Affiliate's stock or assets (to the extent such asset sale includes assets unrelated to the Gemcabene Technology), or a merger, acquisition or similar transaction shall not be deemed a Gemcabene Deal.

**1.21 "Gemcabene Funding"** has the meaning set forth in Section 4.3.

**1.22** "**Gemcabene Technology**" means any and all Intellectual Property Rights that are (a) owned or licensed by Parent or its Affiliates as of the Effective Date or during the term of this Agreement, but prior to the closing of any Acquisition and (b) related to or constituting forms of gemcabene or any salt, hydrate, solvate, anhydrous form, or polymorph thereof, including the monocalcium salt Gemcabene calcium, which is also identified as CI-1027, PF-01430506, and/or PD-072953, methods of using gemcabene, and methods of manufacturing gemcabene, including the targeting of known lipid metabolic pathways to lower levels of LDL-C, hsCRP and triglycerides. Notwithstanding the foregoing, Gemcabene Technology shall not include any Intellectual Property Rights owned or controlled by an Acquiror prior to the closing of an Acquisition or developed or acquired by such Acquiror subsequent to such closing independently of any activities of Parent and its Affiliates (excluding such Acquiror) related to Gemcabene Technology and without reliance on or use of any Gemcabene Technology (provided that the Acquiror establishes reasonable internal safeguards designed to ensure that such conditions of independence are satisfied). Such Intellectual Property Rights as of the date of this Agreement are as set forth on Exhibit A.

**1.23** "**Governmental Entity**" means any foreign or domestic arbitrator, court, nation, government, any state or other political subdivision thereof and an entity exercising executive, legislative, judicial regulatory or administrative functions of, or pertaining to, government.

**1.24** "**Gross Consideration**" means, after the retention of an aggregate amount equal to $500,000 by Parent or its Affiliates from the proceeds of a Gemcabene Deal or the Beijing SL Transaction, an amount equal to 80% of the following amounts: (a) all cash consideration paid by a Third Party to Parent or its Affiliates during the CVR Term in connection with any Gemcabene Deal or the Beijing SL Transaction (including royalty payments, but not including, in the case of the Beijing SL Transaction, the $2,500,000 upfront payment), *plus* (b) with respect to any non-cash consideration received by Parent or its Affiliates from a Third Party during the CVR Term in connection with any Gemcabene Deal or the Beijing SL Transaction, all amounts received by Parent and its Affiliates for such non-cash consideration at the time such non-cash consideration is monetized by the Parent or its Affiliates (which amounts will be subject to payment to the Rights Agent when such non-cash consideration is monetized and such amounts are received by Parent or any of its Affiliates). If a Gemcabene Deal or Beijing SL Transaction also involves assets that are not related to Gemcabene Technology but are related to other proprietary technology, products or assets of Parent or its Affiliates, then the total consideration will be allocated between all such technology, products and assets, and only that consideration allocated to the Gemcabene Technology will be included in Gross Consideration.

**1.25** "**Holder**" means a Person in whose name a CVR is registered in the CVR Register at the applicable time.

**1.26** "**Holders' Representative**" means the Holders' Representative named in the first paragraph of this Agreement or any direct or indirect successor Holders' Representative designated in accordance with Section 6.3.

**1.27** "**Independent Accountant**" means an independent certified public accounting firm of nationally recognized standing designated either (a) jointly by the Holders' Representative and Parent, or (b) if the Holders' Representative and Parent fail to make a designation, jointly by an independent public accounting firm selected by Parent and an independent public accounting firm selected by the Holders' Representative.

**1.28** "**Net Proceeds**" means, for any CVR Payment Period, Gross Consideration *minus* Permitted Deductions. For clarity, to the extent Permitted Deductions exceed Gross Consideration for any CVR Payment Period, any excess Permitted Deductions shall be applied against Gross Consideration in subsequent CVR Payment Periods.

**1.29** "**Officer's Certificate**" means a certificate signed by the chief executive officer, president, chief financial officer, any vice president, the controller, the treasurer or the secretary, in each case of Parent, in his or her capacity as such an officer, and delivered to the Rights Agent.

**1.30** "**Party**" means each of Parent, the Rights Agent and Holders' Representative.

**1.31** "**Payment Amount**" means, with respect to each CVR Payment and each Holder, an amount equal to such CVR Payment *divided by* the total number of CVRs and then *multiplied by* the total number of CVRs held by such Holder as reflected on the CVR Register (rounded down to the nearest whole cent).

**1.32** "**Permitted Deductions**" means the sum of: (i) any and all fees, milestone payments and royalties paid by Parent and its Affiliates to Pfizer pursuant to the Pfizer License Agreement with respect to the Gemcabene Technology that is subject to a Gemcabene Deal, *plus* (ii) all fees, milestones, royalties and other payments paid by Parent and its Affiliates to any other Third Party licensor in consideration for a license to such Third Party's patents that would be infringed, absent

such license, by the practice of such Gemcabene Technology, *plus* (iii) all patent prosecution and maintenance costs, and drug product storage costs, incurred by Parent and its Affiliates with respect to the Gemcabene Technology, *plus* (iv) all out-of-pocket transaction costs incurred by Parent and its Affiliates to Third Parties for the negotiation, entry into and closing of a Gemcabene Deal, or any transaction described under (i)—(iii) in this paragraph, including any broker fees, finder's fees, advisory fees, accountant or attorney's fees, *plus* (v) all fees and costs (including any amounts paid for indemnification) payable by Parent to the Rights Agent pursuant to this Agreement, *plus* (vi) all fees and costs incurred by Parent and its Affiliates after the Closing in connection with the Beijing SL Transaction, including but not limited to those relating to insurance costs, *plus* (vii) all fees and costs incurred by Parent and its Affiliates to settle any claims relating to tail provisions under investment banking engagement letters entered into by Gemphire prior to the Closing, in each case to the extent such costs have been incurred during the CVR Term and are not reimbursed or paid to Parent or its Affiliate by a Third Party (including a Governmental Entity).

**1.33** "**Permitted Transfer**" means a transfer of CVRs (a) upon death of a Holder by will or intestacy; (b) pursuant to a court order; (c) by operation of law (including by consolidation or merger) or without consideration in connection with the dissolution, liquidation or termination of any corporation, limited liability company, partnership or other entity; (d) in the case of CVRs held in book-entry or other similar nominee form, from a nominee to a beneficial owner and, if applicable, through an intermediary, to the extent allowable by DTC; or (e) pursuant to Section 2.6.

**1.34** "**Person**" means any natural person, corporation, limited liability company, trust, unincorporated association, partnership, joint venture or other entity.

**1.35** "**Pfizer**" means Pfizer Inc.

**1.36** "**Pfizer License Agreement**" means that certain Amended and Restated License Agreement between Pfizer and Parent, effective August 2, 2018.

**1.37** "**Record Time**" has the meaning set forth in Section 2.3(e).

**1.38** "**Rights Agent**" means the Rights Agent named in the first paragraph of this Agreement or any direct or indirect successor Rights Agent designated in accordance with the applicable provisions of this Agreement.

**1.39** "**Third Party**" means any Person other than Parent, Rights Agent or their respective Affiliates.

**1.40** "**Valuation Expert**" has the meaning set forth in Section 2.4(e).

**1.41** Rules of Construction. Except as otherwise explicitly specified to the contrary, (a) references to a Section means a Section of this Agreement unless another agreement is specified, (b) the word "including" (in its various forms) means "including without limitation," (c) references to a particular statute or regulation include all rules and regulations thereunder and any successor statute, rules or regulation, in each case as amended or otherwise modified from time to time, (d) words in the singular or plural form include the plural and singular form, respectively, (e) references to a particular Person include such Person's successors and assigns to the extent not prohibited by this Agreement and (f) all references to dollars or "$" refer to United States dollars.

**2. CONTINGENT VALUE RIGHTS.**

**2.1 CVRs**. The CVRs represent the rights of Holders to receive contingent cash payments pursuant to the Merger Agreement and this Agreement. The initial Holders will be the holders of Parent Common Stock as of immediately prior to the Effective Time.

**2.2 Nontransferable**. The CVRs may not be sold, assigned, transferred, pledged, encumbered or in any other manner transferred or disposed of, in whole or in part, other than through a Permitted Transfer.

**2.3 No Certificate; Registration; Registration of Transfer; Change of Address; CVR Distribution.**

**(a)** The CVRs will not be evidenced by a certificate or other instrument.

**(b)** The Rights Agent will create and maintain a register (the "**CVR Register**") for the purpose of registering CVRs and transfers of CVRs as herein provided. The CVR Register will be created, and CVRs will be distributed, pursuant to written instructions to the Rights Agent from Parent. The CVR Register will initially show one position for Cede & Co. representing all the shares of Parent Common Stock held by DTC on behalf of the street holders of the shares of Parent Common Stock held by such holders as of immediately prior to the Effective Time. The Rights Agent will have no responsibility whatsoever directly to the street name holders with respect to transfers of CVRs. With respect to any payments to be made under Section 2.4(d) below, the Rights Agent will accomplish the payment to any former street name holders of shares of Company Common Stock by sending one lump payment to DTC. The Rights Agent will have no responsibilities whatsoever with regard to the distribution of payments by DTC to such street name holders.

**(c)** Subject to the restrictions on transferability set forth in Section 2.2, every request made to transfer a CVR must be in writing and accompanied by a written instrument of transfer in form reasonably satisfactory to the Rights Agent pursuant to its guidelines, including a guaranty of signature by an "eligible guarantor institution" that is a member or participant in the Securities Transfer Agents Medallion Program, duly executed by the Holder thereof, the Holder's attorney duly authorized in writing, the Holder's personal representative or the Holder's survivor, and setting forth in reasonable detail the circumstances relating to the transfer. Upon receipt of such written notice, the Rights Agent will, subject to its reasonable determination that the transfer instrument is in proper form and the transfer otherwise complies with the other terms and conditions of this Agreement (including the provisions of Section 2.2), register the transfer of the CVRs in the CVR Register. Parent and Rights Agent may require payment of a sum sufficient to cover any stamp or other tax or governmental charge that is imposed in connection with any such registration of transfer. The Rights Agent shall have no duty or obligation to take any action under any section of this Agreement that requires the payment by a Holder of a CVR of applicable taxes or charges unless and until the Rights Agent is satisfied that all such taxes or charges have been paid. All duly transferred CVRs registered in the CVR Register will be the valid obligations of Parent and will entitle the transferee to the same benefits and rights under this Agreement as those held immediately prior to the transfer by the transferor. No transfer of a CVR will be valid until registered in the CVR Register.

**(d)** A Holder may make a written request to the Rights Agent to change such Holder's address of record in the CVR Register. The written request must be duly executed by the Holder. Upon receipt of such written notice, the Rights Agent will, subject to its reasonable determination that the transfer instrument is in proper form, promptly record the change of address in the CVR Register.

**(e)** Parent will provide written instructions to the Rights Agent for the distribution of CVRs to holders of Parent Common Stock as of immediately prior to the Effective Time (the "**Record Time**"). Subject to the terms and conditions of this Agreement and Parent's prompt confirmation of the Effective Time, the Rights Agent shall effect the distribution of the CVRs, less any applicable tax withholding, to each holder of Parent Common Stock as of the Record Time by the mailing of a statement of holding reflecting such CVRs.

**2.4 CVR Payment and Related Procedures**.

**(a)** Subsequent to any Gemcabene Deal, within sixty (60) days after the end of any CVR Payment Period during the CVR Term, Parent shall deliver to the Holders' Representative and Rights Agent a CVR Payment Statement for such CVR Payment Period. Concurrent with the delivery of each CVR Payment Statement, Parent shall pay the Rights Agent in U.S. dollars an amount equal to the Net Proceeds (if any) received with respect to the applicable CVR Payment Period. For clarity, to the extent that any non-cash consideration in Gross Consideration is monetized after the end of the CVR Term, Parent will include a description of such non-cash consideration in the CVR Payment Statement for the CVR Payment Period in which it is received, and will make the applicable payment to the Rights Agent upon monetization of such non-cash consideration (regardless of whether such monetization occurs after the end of the CVR Term).

**(b)** Upon the Holders' Representative's request after receipt of any statement under Section 2.4(a), Parent shall promptly provide the Holders' Representative with reasonable documentation to support its calculation of Net Proceeds (including any allocation applied when calculating the Gross Consideration component thereof and including its determination of the applicable fair market value(s)), and shall make its financial personnel reasonably available to the Holders' Representative to discuss and answer the Holders' Representative's questions regarding such calculations. If the Holders' Representative does not agree with Parent's calculation, and the Holders' Representative and Parent fail to agree on an alternative calculation within ten (10) Business Days after the Holders' Representative requests documentation supporting Parent's calculation, then the Parent and the Holders' Representative shall engage a mutually agreeable independent third party valuation expert (a "**Valuation Expert**") to determine the applicable calculation. The determination of the Valuation Expert will be final and binding on the Parent, the Rights Agent, the Holders' Representative and each Holder, unless the Parent and Holders' Representative agree otherwise in writing. The Valuation Expert shall be an investment banker or other Person experienced in the valuation of pharmaceutical businesses and products, who shall not have had any material business relationship with Parent or the Holders' Representative in the thirty-six (36) months prior to appointment, unless Parent and the Holders' Representative agree in writing to waive this requirement. If the Holders' Representative and Parent fail to agree on a Valuation Expert within thirty (30) days after determining to seek a Valuation Expert, the Holders' Representative and Parent shall each designate a valuation expert, and the two such experts shall select a Valuation Expert. The Valuation Expert selected shall be entitled to apply discounted cash flow models and such other valuation models as she or he determines are appropriate under the circumstances, together with any other valuation models as may be agreed by the Holders' Representative and Parent. Within ten (10) Business Days after the selection of the Valuation Expert, each of Parent and the Holders' Representative will deliver to the Valuation Expert a detailed written proposal setting forth its proposed calculation of the Net Proceeds and Parent will deliver to the Valuation Expert a copy of the applicable Third Party agreements. Parent and the Holders' Representative will use reasonable efforts to cause the Valuation Expert to make a determination within thirty (30) days after receipt of the proposals. Following its determination, the Valuation Expert shall deliver to

Parent and the Holders' Representative a report of her or his determination, and within thirty (30) days after receipt of such report, Parent shall make the applicable payment to the Rights Agent. The fees charged by the Valuation Expert shall be borne fifty percent (50%) by the Holders (through deduction from the next one or more CVR Payments, including the CVR Payment evaluated by the Valuation Expert) and fifty percent (50%) by Parent.

**(c)** All payments by Parent to the Rights Agent under this Agreement shall be made in U.S. dollars. The rate of exchange to be used in computing the amount of currency equivalent in U.S. dollars shall be made at the average of the closing exchange rates reported in *The Wall Street Journal* (U.S., Eastern Edition) for the ten (10) Business Days preceding the date of the CVR Payment Statement.

**(d)** The Rights Agent will promptly, and in any event within ten (10) Business Days after receipt of a CVR Payment Statement under Section 2.4(a), send each Holder at its address set forth on the CVR Register a copy of such statement. If the Rights Agent also receives any payment under Section 2.4(a) (each, a "**CVR Payment**"), then within ten (10) Business Days after the receipt of each CVR Payment, the Rights Agent will also pay to each Holder, by check mailed to the address of each Holder as reflected in the CVR Register as of the close of business on the date of the receipt of the CVR Payment Statement, such Holder's Payment Amount.

**(e)** Parent shall be entitled to deduct or withhold, or cause the Rights Agent to deduct or withhold, from any amount otherwise payable to a Holder pursuant to Section 2.4(d) such amounts as may be required to be deducted or withheld therefrom under the Code, the Treasury Regulations thereunder, or any other applicable Tax Law, or as may be determined by Parent. Prior to making any such Tax withholdings or causing any such Tax withholdings to be made with respect to any Holder, Parent shall instruct the Rights Agent to solicit from such Holder an IRS Form W-9 or other applicable Tax form within a reasonable amount of time and such Holder shall promptly provide any necessary Tax forms (including an IRS Form W-9 or an applicable IRS Form W-8) in order to avoid or reduce such withholding amounts. To the extent such amounts are so deducted or withheld, such amounts shall be treated for all purposes under this Agreement as having been paid to the person to whom such amounts would otherwise have been paid, and prior to the 15th day of February in the year following any payment of such taxes by Parent or the Rights Agent, Parent shall deliver (or shall cause the Rights Agent to deliver) to the Person to whom such amounts would otherwise have been paid the original Form 1099 or other reasonably acceptable evidence of such withholding.

**(f)** Any portion of any CVR Payment that remains undistributed to the Holders six (6) months after the CVR Payment is received by the Rights Agent from the Parent, provided that the Rights Agent has fully complied with Section 2.4(d), will be delivered by the Rights Agent to Parent, upon demand, and any Holder will thereafter look only to Parent for payment of its share of such returned CVR Payment, without interest, but such Holder will have no greater rights against Parent than those accorded to general unsecured creditors of Parent under applicable law.

**(g)** Neither Parent nor the Rights Agent will be liable to any person in respect of any Payment Amount delivered to a public official pursuant to any applicable abandoned property, escheat or similar law. If, despite Parent's and/or the Rights Agent's commercially reasonable efforts to deliver a Payment Amount to the applicable Holder, such Payment Amount has not been paid immediately prior to the date on which such Payment Amount would otherwise escheat to or become the property of any Governmental Entity, any such Payment Amount will, to the extent permitted by applicable law, become the property of Parent, free and clear

of all claims or interest of any person previously entitled thereto. In addition to and not in limitation of any other indemnity obligation herein, Parent agrees to indemnify and hold harmless Rights Agent with respect to any liability, penalty, cost or expense Rights Agent may incur or be subject to in connection with transferring such property to Parent.

**(h)** For the avoidance of doubt, as between Parent, Rights Agent and the Holders, Parent shall have sole responsibility for making all payments due pursuant to the Pfizer License Agreement. The CVR Payments shall be in addition to, and not in lieu of, any such payments.

**2.5 No Voting, Dividends or Interest; No Equity or Ownership Interest in Parent**.

**(a)** The CVRs will not have any voting or dividend rights, and interest will not accrue on any amounts payable on the CVRs to any Holder.

**(b)** The CVRs will not represent any equity or ownership interest in Parent or in any constituent company to the Merger.

**(c)** Each Holder acknowledges and agrees to the appointment and authority of the Holders' Representative to act as the exclusive representative, agent and attorney-in-fact of such Holder and all Holders as set forth in this Agreement. Each Holder agrees that such Holder will not challenge or contest any action, inaction, determination or decision of the Holders' Representative or the authority or power of the Holders' Representative and will not threaten, bring, commence, institute, maintain, prosecute or voluntarily aid any action, which challenges the validity of or seeks to enjoin the operation of any provision of this Agreement, including, without limitation, the provisions related to the authority of the Holders' Representative to act on behalf of such Holder and all Holders as set forth in this Agreement.

**2.6 Ability to Abandon CVR**. A Holder may at any time, at such Holder's option, abandon all of such Holder's remaining rights in a CVR by transferring such CVR to Parent without consideration therefor. Nothing in this Agreement is intended to prohibit Parent or its Affiliates from offering to acquire CVRs for consideration in its sole discretion.

**3. THE RIGHTS AGENT.**

**3.1 Appointment of Rights Agents; Certain Duties and Responsibilities**. The Parent hereby appoints the Rights Agent to act as agent for the Parent in accordance with the express terms and conditions hereof, and the Rights Agent hereby accepts such appointment. The Rights Agent will not have any liability for any actions taken or not taken in connection with this Agreement, except to the extent of its willful misconduct, bad faith or gross negligence (in each case as determined by a final, non-appealable decision of a court of competent jurisdiction).

**3.2 Certain Rights of Rights Agent**. The Rights Agent undertakes to perform such duties and only such duties as are specifically set forth in this Agreement, and no implied covenants or obligations will be read into this Agreement against the Rights Agent. In addition:

**(a)** the Rights Agent may rely and will be protected and held harmless by Parent in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order or other paper or document believed by it to be genuine and to have been signed or presented by the proper party or parties;

**(b)** whenever the Rights Agent will deem it desirable that a matter be proved or established prior to taking, suffering or omitting any action hereunder, the Rights Agent may rely upon an Officer's Certificate, which certificate shall be full authorization and protection to the Rights Agent, and the Rights Agent shall, in the absence of bad faith, gross negligence or willful misconduct on its part (in each case as determined by a final, non-appealable decision of a court of competent jurisdiction), incur no liability and be held harmless by Parent for or in respect of any action taken, suffered or omitted to be taken by it under the provisions of this Agreement in reliance upon such certificate;

**(c)** the Rights Agent may engage and consult with counsel of its selection and the advice of such counsel or any opinion of counsel will be full and complete authorization and protection and shall be held harmless by Parent in respect of any action taken, suffered or omitted by it hereunder in the absence of bad faith and in reliance thereon;

**(d)** the permissive rights of the Rights Agent to do things enumerated in this Agreement will not be construed as a duty;

**(e)** the Rights Agent will not be required to give any note or surety in respect of the execution of such powers or otherwise in respect of the premises;

**(f)** the Rights Agent will have no liability and shall be held harmless by Parent in respect of the validity of this Agreement or the execution and delivery hereof (except the due execution and delivery hereof by the Rights Agent and the enforceability of this Agreement against the Rights Agent assuming the due execution and delivery hereof by Parent); nor shall it be responsible for any breach by the Parent or any other Person of any covenant or condition contained in this Agreement;

**(g)** Parent agrees to indemnify Rights Agent for, and hold Rights Agent harmless against, any loss, liability, damage, claim, judgment, fine, penalty, claim, demands, suits or expense (including the reasonable expenses and counsel fees and other disbursements) arising out of or in connection with Rights Agent's preparation, delivery, negotiation, amendment, administration and execution of this Agreement and the exercise and performance of its duties hereunder, including the costs and expenses of defending Rights Agent against any claims, charges, demands, suits or loss, unless such loss has been determined by a final, non-appealable order of a court of competent jurisdiction to be a result of Rights Agent's gross negligence, bad faith or willful or intentional misconduct (in each case as determined by a final, non-appealable decision of a court of competent jurisdiction);

**(h)** notwithstanding anything in this Agreement to the contrary, any liability of the Rights Agent under this Agreement will be limited to the amount of annual fees (but not reimbursed expenses) paid by the Parent to the Rights Agent during the twelve (12) months immediately preceding the event for which recovery from the Rights Agent is being sought;

**(i)** Parent agrees to (i) pay the fees and expenses of the Rights Agent in connection with this Agreement as agreed upon in writing by the Rights Agent and Parent on or prior to the date hereof, and (ii) reimburse the Rights Agent for all taxes and governmental charges, reasonable expenses and other charges of any kind and nature incurred by the Rights Agent in the execution of this Agreement (other than taxes imposed on or measured by the Rights Agent's net income and franchise or similar taxes imposed on it). The Rights Agent will also be entitled to reimbursement from Parent for all reasonable and necessary out-of-pocket expenses paid or incurred by it in connection with the administration by the Rights Agent of its duties hereunder;

**(j)** Parent agrees that it will perform, execute, acknowledge and deliver or cause to be performed, executed, acknowledged and delivered all such further and other acts, instruments and assurances as may reasonably be required or requested by the Rights Agent for the carrying out or performing by the Rights Agent of the provisions of this Agreement;

**(k)** the Rights Agent may execute and exercise any of the rights or powers hereby vested in it or perform any duty hereunder either itself or by or through its attorneys or agents, and the Rights Agent shall not be answerable or accountable for any act, omission, default, neglect or misconduct of any such attorneys or agents or for any loss to the Parent, to the holders of the CVRs or any other Person resulting from any such act, omission, default, neglect or misconduct, absent gross negligence or bad faith in the selection and continued employment thereof (which gross negligence or bad faith must be determined by a final, non-appealable judgment of a court of competent jurisdiction);

**(l)** unless otherwise specifically prohibited by the terms of this Agreement, the Rights Agent and any stockholder, affiliate, member, director, officer, agent, representative or employee of the Rights Agent may buy, sell or deal in any of the securities of the Parent or become pecuniarily interested in any transaction in which the Parent may be interested, or contract with or lend money to the Parent or otherwise act as fully and freely as though it were not the Rights Agent under this Agreement. Nothing herein shall preclude the Rights Agent or any such stockholder, affiliate, director, member, officer, agent, representative or employee from acting in any other capacity for the Parent or for any other Person;

**(m)** the Rights Agent shall act hereunder solely as agent for the Parent and it shall not assume any obligations or relationship of agency or trust with any of the Holders or the Holder's Representative;

**(n)** the Rights Agent shall not be deemed to have knowledge of any event of which it was supposed to receive notice thereof hereunder, and the Rights Agent shall be fully protected and shall incur no liability for failing to take action in connection therewith, unless and until it has received such notice in writing;

**(o)** the Rights Agent shall not be liable for or by reason of, and shall be held harmless by Parent with respect to any of the statements of fact or recitals contained in this Agreement or be required to verify the same, but all such statements and recitals are and shall be deemed to have been made by the Parent only;

**(p)** the Rights Agent shall not be liable for special, punitive, indirect, incidental or consequential loss or damages of any kind whatsoever (including, without limitation, lost profits), even if the Rights Agent has been advised of the likelihood of such loss or damages, and regardless of the form of action and no provision of this Agreement shall require the Rights Agent to expend or risk its own funds or otherwise incur any financial liability in the performance of any of its duties hereunder or in the exercise of its rights if there shall be reasonable grounds for believing that repayment of such funds or adequate indemnification against such risk or liability is not reasonably assured to it;

**(q)** the Rights Agent shall not have any duty or responsibility in the case of the receipt of any written demand from any Holder with respect to any action or default by the Parent, including, without limiting the generality of the foregoing, any duty or responsibility to initiate or attempt to initiate any proceedings at law or otherwise or to make any demand upon the Parent; and

**(r)** the provisions of this Section 3.2 shall survive the expiration of the CVRs and the termination of this Agreement and the resignation, replacement or removal of the Rights Agent. The costs and expenses incurred in enforcing this right of indemnification shall be paid by the Parent.

**3.3 Resignation and Removal; Appointment of Successor**.

**(a)** The Rights Agent may resign at any time by giving written notice thereof to Parent, specifying a date when such resignation will take effect, which notice will be sent at least thirty (30) days prior to the date so specified. Parent has the right to remove the Rights Agent at any time by notice specifying a date when such removal will take effect. Such notice of removal will be given by Parent to the Rights Agent, which notice will be sent at least thirty (30) days prior to the date so specified.

**(b)** If the Rights Agent provides notice of its intent to resign, is removed or becomes incapable of acting, Parent, by a Board Resolution, will as soon as is reasonably possible appoint a qualified successor Rights Agent who, unless otherwise consented to in writing by the Holders' Representative, shall be a stock transfer agent of national reputation or the corporate trust

department of a commercial bank. The successor Rights Agent so appointed will, forthwith upon its acceptance of such appointment in accordance with Section 3.4, become the successor Rights Agent.

**(c)** Parent will give notice of each resignation and each removal of a Rights Agent and each appointment of a successor Rights Agent by mailing written notice of such event by first-class mail to the Holders as their names and addresses appear in the CVR Register. Each notice will include the name and address of the successor Rights Agent. If Parent fails to send such notice within ten (10) Business Days after acceptance of appointment by a successor Rights Agent, the successor Rights Agent will cause the notice to be mailed at the expense of Parent.

**3.4 Acceptance of Appointment by Successor**. Every successor Rights Agent appointed hereunder will execute, acknowledge and deliver to Parent and to the retiring Rights Agent an instrument accepting such appointment and a counterpart of this Agreement, and thereupon such successor Rights Agent, without any further act, deed or conveyance, will become vested with all the rights, powers, trusts and duties of the retiring Rights Agent. On request of Parent or the successor Rights Agent, the retiring Rights Agent will execute and deliver an instrument transferring to the successor Rights Agent all the rights (except such rights of the predecessor Rights Agent which survive pursuant to Section 3.3 of this Agreement), powers and trusts of the retiring Rights Agent.

**4. COVENANTS**

**4.1 List of Holders**. Parent will furnish or cause to be furnished to the Rights Agent in such form as Parent receives from Parent's transfer agent (or other agent performing similar services for Parent), the names and addresses of the Holders within ten (10) Business Days of the Effective Time.

**4.2 Payment**. If any CVR Payment is due under Section 2.4(a), Parent will deposit the CVR Payment with the Rights Agent for payment to the Holders in accordance with Section 2.4(d).

**4.3 Development of Gemcabene Technology**. Following the Effective Time, Parent shall make or Parent shall cause the Company to make an amount available, up to and not to exceed $1,000,000 (the "**Gemcabene Funding**"), to support the development of the Gemcabene Technology through the quarter ending March 31, 2020 (the "**Covenant End Date**"). The Gemcabene Funding will be allocated and spent based on the mutual agreement of Parent and the Holders' Representative. Such amount shall be funded upon the execution by Parent of a license and collaboration agreement (the "**Beijing SL Transaction"**) with Beijing SL Pharmaceutical Co., Ltd. ("**Beijing SL**"), provided that such license and collaboration agreement with Beijing SL has been executed on terms acceptable to the Company prior to August 31, 2019, and the receipt by Parent of an upfront payment from Beijing SL in an amount not less than $2,500,000 to be paid by Beijing SL in accordance with the terms and conditions set forth in the license and collaboration agreement with Beijing SL. Following the Effective Time neither Parent nor the Company shall have any obligation to develop any Gemcabene Technology, or to expend any funds or efforts whatsoever with respect to the Gemcabene Technology, other than the provision of the Gemcabene Funding, which shall be used prior to the Covenant End Date to fund, to the extent such funds are sufficient therefor, (i) a toxicity study with respect to Gemcabene, (ii) a related submission to the Food and Drug Administration (the "**FDA**") designed to result in the release of the partial clinical hold with respect to Gemcabene, (iii) preparation for an end-of-phase 2 meeting with the FDA, and (iv) consulting costs for up to four (4) former employees of Parent to support such activities. For the avoidance of doubt, following the Effective Time, neither the Company nor Parent has any obligation to provide further funding should the Gemcabene Funding not be sufficient to fund the matters set forth in (i) through (iv) in the previous sentence. Except as expressly set forth in this Section 4.3, Parent shall have no obligation to support the development of the Gemcabene Technology or to undertake any effort or expend any resource to divest or otherwise monetize the Gemcabene Technology or to maximize the likelihood or amount of any CVR Payment. Following the Covenant End Date, Parent may, at any time and in its sole and absolute discretion, discontinue any and all

further efforts to develop, divest or otherwise monetize the Gemcabene Technology, upon a determination by the Board of Directors (as determined by a majority vote), it being understood and agreed that Parent has not promised or projected any CVR Payment and any such CVR Payment is speculative and may not occur.

**4.4 Books and Records**. Parent shall, and shall cause its Affiliates to, keep true, complete and accurate records in sufficient detail to enable the Holders and their consultants or professional advisors to confirm the applicable Payment Amount payable to each Holder hereunder in accordance with the terms specified in this Agreement.

**4.5 Audits**.

**(a)** Upon the written request of the Holders' Representative provided to Parent not less than forty-five (45) days in advance (such request not to be made more than once in any twelve (12) month period), Parent shall permit, and shall cause its Affiliates to permit, the Independent Accountant to have access during normal business hours to such of the records of Parent or its Affiliates as may be reasonably necessary to determine the accuracy of the Net Proceeds reported by Parent. Parent shall, and shall cause its Affiliates to, furnish to the Independent Accountant such access, work papers and other documents and information reasonably necessary for the Independent Accountant to calculate and verify the Net Proceeds; provided that Parent may, and may cause its Affiliates to, redact documents and information not relevant for such calculation pursuant to this Section 4.5. The Independent Accountant shall disclose to Parent and the Holders' Representative any matters directly related to its findings to the extent reasonably necessary to verify the Net Proceeds.

**(b)** If the Independent Accountant concludes that a CVR Payment that was properly due was not paid to the Rights Agent, or that any CVR Payment made was in an amount less than the amount due, Parent shall pay the CVR Payment or underpayment thereof to the Rights Agent for further distribution to the Holders (such amount being the "**CVR Shortfall**"). The CVR Shortfall shall be paid within ten (10) Business Days after the date the Independent Accountant delivers to Parent and the Holders' Representative the Independent Accountant's written report. The decision of the Independent Accountant shall be final, conclusive and binding on Parent and the Holders, shall be non-appealable and shall not be subject to further review. The fees charged by the Independent Accountant shall be paid by the Holders' Representative; provided, however, that if the Independent Accountant concludes that Parent has underreported or underpaid any CVR Payment by more than twenty percent (20%), the fees charged by such Independent Accountant shall be paid by Parent.

**(c)** Each Person seeking to receive information from Parent in connection with a review pursuant to this Section 4.5 shall enter into, and shall cause its accounting firm to enter into, a reasonable and mutually satisfactory confidentiality agreement with Parent or any controlled Affiliate obligating such party to retain all such information disclosed to such party in confidence pursuant to such confidentiality agreement.

## 5. AMENDMENTS

**5.1 Amendments without Consent of Holders**.

**(a)** Without the consent of any Holders or the Holders' Representative, Parent, when authorized by a Board Resolution, at any time and from time to time, and the Rights Agent may enter into one or more amendments hereto, solely to evidence the succession of another Person to Parent and the assumption by such successor of the covenants of Parent herein as provided in Section 7.3.

**(b)** Without the consent of any Holders, Parent, when authorized by a Board Resolution and the Rights Agent, in the Rights Agent's sole and absolute discretion, at any time and from time to time, may enter into one or more amendments hereto, solely for any of the following purposes:

**(i)** to evidence the succession of another Person as a successor Rights Agent and the assumption by such successor of the covenants and obligations of the Rights Agent herein;

**(ii)** to add to the covenants of Parent such further covenants, restrictions, conditions or provisions as Parent and the Rights Agent consider to be for the protection of the Holders; provided that, in each case, such provisions do not adversely affect the interests of the Holders;

**(iii)** to cure any ambiguity, to correct or supplement any provision herein that may be defective or inconsistent with any other provision herein, or to make any other provisions with respect to matters or questions arising under this Agreement; provided that, in each case, such provisions do not adversely affect the interests of the Holders;

**(iv)** as may be necessary or appropriate to ensure that the CVRs are not subject to registration under the Securities Act or the Exchange Act;

**(v)** to reduce the number of CVRs, in the event any Holder agrees to renounce such Holder's rights under this Agreement in accordance with Section 7.4 or to transfer such CVRs to Parent pursuant to Section 2.6; or

**(vi)** any other amendments hereto for the purpose of adding, eliminating or changing any provisions of this Agreement, unless such addition, elimination or change is adverse to the interests of the Holders.

**(c)** Promptly after the execution by Parent and the Rights Agent of any amendment pursuant to the provisions of this Section 5.1, Parent will mail (or cause the Rights Agent to mail) a notice thereof by first class mail to each Holder at its address as it appears on the CVR Register, setting forth such amendment. The failure to deliver such notice, or any defect in such notice, shall not impair or affect the validity of such amendment to this Agreement.

**5.2 Amendments with Consent of Holders**.

**(a)** Subject to Section 5.1 (which amendments pursuant to Section 5.1 may be made without the consent of the Holders), with the consent of the Acting Holders, whether evidenced in writing or taken at a meeting of the Holders, Holders' Representative, Parent, when authorized by a Board Resolution, and the Rights Agent may enter into one or more amendments hereto for the purpose of adding, eliminating or changing any provisions of this Agreement, even if such addition, elimination or change is materially adverse to the interest of the Holders, including any amendment to effect any of the following:

**(i)** modify in a manner adverse to the Holders (A) any provision contained herein with respect to the termination of this Agreement or the CVRs, (B) the time for, and amount of, any payment to be made to the Holders pursuant to this Agreement, or (C) the definitions of Net Proceeds, including related definitions, such as Gross Consideration, Permitted Deductions, Gemcabene Deal, and Gemcabene Technology;

**(ii)** reduce the number of CVRs (except as provided in Section 5.1(b)(v)); or

**(iii)** modify any provisions of this Section 5.2, except to increase the percentage of Holders from whom consent is required or to provide that certain provisions of this Agreement cannot be modified or waived without the consent of the Holder of each outstanding CVR affected thereby.

**(b)** Promptly after the execution by Parent, the Holders' Representative and the Rights Agent of any amendment pursuant to the provisions of this Section 5.2, Parent will mail (or cause the Rights Agent to mail) a notice thereof by first class mail to each Holder at its address as it appears on the CVR Register, setting forth such amendment. The failure to deliver such notice, or any defect in such notice, shall not impair or affect the validity of such amendment to this Agreement.

**5.3 Execution of Amendments**. In executing any amendment permitted by this Section 5, the Rights Agent will be entitled to receive, and will be fully protected in relying upon, an opinion of counsel selected by Parent stating that the execution of such amendment is authorized or permitted by this Agreement. The Rights Agent may, but is not obligated to, enter into any such amendment that affects the Rights Agent's own rights, privileges, covenants or duties under this Agreement or otherwise. No supplement or amendment to this Agreement shall be effective unless duly executed by the Rights Agent.

**5.4 Effect of Amendments**. Upon the execution of any amendment under this Section 5, this Agreement will be modified in accordance therewith, such amendment will form a part of this Agreement for all purposes and every Holder will be bound thereby.

**6. HOLDERS' REPRESENTATIVE**

**6.1 Appointment of Holders' Representative**. To the extent valid and binding under applicable law, the Holders' Representative is hereby appointed, authorized and empowered to be the exclusive representative, agent and attorney-in-fact of each Holder, with full power of substitution, to make all decisions and determinations and to act (or not act) and execute, deliver and receive all agreements, documents, instruments and consents on behalf of and as agent for each Holder at any time in connection with, and that may be necessary or appropriate to accomplish the intent and implement the provisions of this Agreement and to facilitate the consummation of the transactions contemplated hereby, including without limitation for purposes of (i) negotiating and settling, on behalf of the Holders, any dispute that arises under this Agreement after the Effective Time, (ii) confirming the satisfaction of Parent's obligations under this Agreement and (iii) negotiating and settling matters with respect to the amounts to be paid to the Holders pursuant to this Agreement.

**6.2 Authority**. To the extent valid and binding under applicable law, the appointment of the Holders' Representative by the Holders upon the Effective Time is coupled with an interest and may not be revoked in whole or in part (including, without limitation, upon the death or incapacity of any stockholder). Subject to the prior qualifications, such appointment shall be binding upon the heirs, executors, administrators, estates, personal representatives, officers, directors, security holders, successors and assigns of each Holder. To the extent valid and binding under applicable law, all decisions of the Holders' Representative shall be final and binding on all Holders. Parent and the Rights Agent shall be entitled to rely upon, without independent investigation, any act, notice, instruction or communication from the Holders' Representative and any document executed by the Holders' Representative on behalf of any Holder and shall be fully protected in connection with any action or inaction taken or omitted to be taken in reliance thereon, absent willful misconduct by Parent or the Rights Agent (as such willful misconduct is determined by a final, non-appealable judgment of a court of competent jurisdiction). The Holders' Representative shall not be responsible for any loss suffered by, or liability of any kind to, the Holders arising out of any act done or omitted by the Holders' Representative in connection with the acceptance or administration of the Holders' Representative's duties hereunder, unless such act or omission involves gross negligence or willful misconduct.

**6.3 Successor Holders' Representative**. The Holders' Representative may be removed for any reason or no reason by written consent of the Acting Holders. In the event that the Holders' Representative becomes unable to perform its responsibilities hereunder or resigns or is removed from such position, the Acting Holders shall be authorized to and shall select another representative to fill such vacancy and such substituted representative shall be deemed to be the Holders' Representative for all purposes of this Agreement. The newly-appointed Holders' Representative shall notify Parent, the Rights Agent and any other appropriate Person in writing of its appointment, provide evidence that the Acting Holders approved such appointment and provide appropriate contact information for purposes of this Agreement. Parent and the Rights Agent shall be entitled to rely upon, without independent investigation, the identity and validity of such newly-appointed Holders' Representative as set forth in such written notice. In the event that within 30 days after the Holders' Representative becomes unable to perform its responsibilities hereunder or resigns or is removed from such position, no successor Holders' Representative has been so selected, Parent shall cause the Rights Agent to notify the Person holding the largest quantity of the outstanding CVRs (and who is not Parent or, to the Rights Agent's actual knowledge, any Affiliate of Parent) that such Person is the successor Holders' Representative, and such Person shall be the successor Holders' Representative hereunder. If such Person notifies the Rights Agent in writing that such Person declines to serve, the Rights Agent shall forthwith notify the Person holding the next-largest quantity of the outstanding CVRs (and who is not Parent or, to the Rights Agent's actual knowledge, any Affiliate of Parent) that such next-largest-quantity Person is the successor Holders' Representative, and such next-largest-quantity Person shall be the successor Holders' Representative hereunder. (And so on, to the extent as may be necessary.) The Holders are intended third party beneficiaries of this Section 6.3. If a successor Holders' Representative is not appointed pursuant to the preceding procedure within 60 days after the Holders' Representative becomes unable to perform its responsibilities hereunder or resigns or is removed from such position, Parent shall appoint a successor Holders' Representative.

**6.4 Termination of Duties and Obligations**. The Holders' Representative's duties and obligations under this Agreement shall survive until no CVRs remain outstanding or until this Agreement expires or is terminated pursuant to Section 7.7(b), whichever is earlier.

## 7. OTHER PROVISIONS OF GENERAL APPLICATION

**7.1 Notices to Rights Agent, Parent and Holders' Representative**. All notices and other communications hereunder shall be in writing and shall be deemed to have been duly delivered and received hereunder (a) one Business Day after being sent for next Business Day delivery, fees prepaid, via a reputable international overnight courier service, (b) upon delivery in the case of delivery by hand, or (c) on the date delivered if sent by email (with a written or electronic confirmation of delivery) prior to 5:00 p.m. Eastern time, otherwise on the next succeeding Business Day, in each case to the intended recipient as set forth below:

If to the Rights Agent, to it at:

Computershare Inc.
150 Royall Street, 2nd Floor
Canton, MA 02021
Attn: Legal Department

With a copy to:

If to Parent, to it at:

Gemphire Therapeutics Inc.
177 Huntington Avenue, Suite 1700
Boston, MA 02115
Attn: John L. Brooks, III, President
Email:

With a copy to:

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
One Financial Center
Boston, MA 02111
Attn: Megan N. Gates
Fax: 617-542-2241

If to the Holders' Representative, to:

Grand Rapids Holders' Representative, LLC
650 Trade Centre Way
Kalamazoo, MI 49002
Attn: Phillip D. Torrence

With a copy to:

Honigman LLP
650 Trade Centre Way
Suite 200

Kalamazoo, MI 49002-0402
Attention: Phillip D. Torrence
Email:

The Rights Agent, Parent or the Holders' Representative may specify a different address or electronic mail address by giving notice in accordance with this Section 7.1.

**7.2 Notice to Holders**. Where this Agreement provides for notice to Holders, such notice will be sufficiently given (unless otherwise herein expressly provided) if in writing and mailed, first-class postage prepaid, to each Holder affected by such event, at the Holder's address as it appears in the CVR Register, not later than the latest date, and not earlier than the earliest date, if any, prescribed for the giving of such notice. In any case where notice to Holders is given by mail, neither the failure to mail such notice, nor any defect in any notice so mailed, to any particular Holder will affect the sufficiency of such notice with respect to other Holders.

**7.3 Parent Successors and Assigns; Merger of Rights Agent**.

**(a)** Parent may not assign this Agreement without the prior written consent of the Holders' Representative, provided that (a) Parent may assign, in its sole discretion and without the consent of any other party, any or all of its rights, interests and obligations hereunder to one or more direct or indirect wholly-owned subsidiaries of Parent (each, an "**Assignee**") provided that the Assignee agrees to assume and be bound by all of the terms of this Agreement; provided, however, that in connection with any assignment to an Assignee, Parent shall, and shall agree to, remain liable for the performance by such Assignee of all obligations of Parent hereunder, with such Assignee substituted for Parent under this Agreement, and (b) Parent may assign this Agreement in its entirety without the consent of any other party to its successor in interest in connection with the sale of all or substantially all of its assets or of its stock, or in connection with a merger, acquisition or similar transaction (such successor in interest, the "**Acquiror**", and such transaction, the "**Acquisition**"). This Agreement will be binding upon, inure to the benefit of and be enforceable by Parent's successors, acquirers and each Assignee. Each reference to "Parent" in this Agreement shall be deemed to include Parent's successors, acquirers and all Assignees. Each of Parent's successors, acquirers and assigns shall expressly assume by an instrument supplemental hereto, executed and delivered to the Rights Agent, the due and punctual payment of the CVR Payments and the due and punctual performance and observance of all of the covenants and obligations of this Agreement to be performed or observed by Parent.

**(b)** Any Person into which the Rights Agent or any successor Rights Agent may be merged or with which it may be consolidated, or any Person resulting from any merger or consolidation to which the Rights Agent or any successor Rights Agent shall be a party, or any Person succeeding to the stock transfer or other shareholder services business of the Rights Agent or any successor Rights Agent, shall be the successor to the Rights Agent under this Agreement without the execution or filing of any paper or any further act on the part of any of the Parties hereto, provided that such Person would be eligible for appointment as a successor Rights Agent under the provisions of the Agreement. The purchase of all or substantially all of the Rights Agent's assets employed in the performance of transfer agent activities shall be deemed a merger or consolidation for purposes of this Section 7.3(b).

**7.4 Benefits of Agreement**. Nothing in this Agreement, express or implied, will give to any Person (other than the Rights Agent, Parent, Parent's successors and assignees, and the Holders) any benefit or any legal or equitable right, remedy or claim under this Agreement or under any covenant or provision herein contained, all such covenants and provisions being for the sole benefit of the Rights Agent, Parent, Parent's successors and assignees, and the Holders. The rights of Holders are limited to those expressly provided in this Agreement and the Merger Agreement. Notwithstanding anything to the contrary contained herein, any Holder may agree to renounce, in whole or in part, such Holder's rights under this Agreement by written notice to the Rights Agent and Parent, which notice, if given, shall be irrevocable. In such event, such Holder's CVRs will not be included for determining the Payment Amounts to all other Holders. Further, for the avoidance of doubt, any decision by the Board of Directors to discontinue the pursuit of a Gemcabene Deal following the Covenant End Date shall be in the sole discretion of the Board of Directors, and shall not provide or give rise to a right of action to any Holder.

**7.5 Severability**. If any provision of this Agreement is held invalid or unenforceable by any court of competent jurisdiction, the other provisions of this Agreement shall remain in full force and effect. Any provision of this Agreement held invalid or unenforceable only in part or degree shall remain in full force and effect to the extent not held invalid or unenforceable. The Parties further agree to replace such invalid or unenforceable provision of this Agreement with a valid and enforceable provision that will achieve, to the extent possible, the economic, business and other purposes of such invalid or unenforceable provision; provided, however, that if such excluded provision shall affect the rights, immunities, liabilities, duties or obligations of the Rights Agent, the Rights Agent shall be entitled to resign immediately upon written notice to the Parent.

**7.6 Counterparts and Signature**. This Agreement may be executed in two or more counterparts (including by electronic scan delivered by electronic mail), each of which shall be deemed an original but all of which together shall be considered one and the same agreement and shall become effective when counterparts have been signed by each of the Parties hereto and delivered to the other Party, it being understood that the Parties need not sign the same counterpart.

**7.7 Termination.**

**(a)** This Agreement will expire and be of no force or effect, the Parties hereto will have no liability hereunder (other than with respect to monies due and owing by Parent to Rights Agent or any other rights of the Rights Agent which expressly survive the termination of this Agreement), and no additional payments will be required to be made, upon the later of (i) the conclusion of the CVR Term and (ii) the payment of the full amount of all CVR Payments to the Rights Agent and the payment of the full amount of all Payment Amounts to the Holders by the mailing by the Rights Agent of each applicable Payment Amount to each Holder at the address reflected in the CVR Register.

**(b)** This Agreement will terminate automatically upon any termination of the Merger Agreement prior to the Effective Time.

**7.8 Funds**. All funds received by the Rights Agent under this Agreement that are to be distributed or applied by the Rights Agent in the performance of services hereunder (the "**Funds**") shall be held by the Rights Agent as agent for the Parent and deposited in one or more bank accounts to be maintained by the Rights Agent in its name as agent for the Parent. Until paid pursuant to the terms of this Agreement, the Rights Agent will hold the Funds through such accounts in: deposit accounts of commercial banks with Tier 1 capital exceeding $1 billion or with an average rating above investment grade by S&P (LT Local Issuer Credit Rating), Moody's (Long Term Rating) and Fitch Ratings, Inc. (LT Issuer Default Rating) (each as reported by Bloomberg Finance L.P.). The Rights Agent shall have no responsibility or liability for any diminution of the Funds that may result from any deposit made by the Rights Agent in accordance with this paragraph, including any losses resulting from a default by any bank, financial institution or other Third Party. The Rights Agent may from time to time receive interest, dividends or other earnings in connection with such deposits. The Rights Agent shall not be obligated to pay such interest, dividends or earnings to the Parent, any Holder or any other party.

**7.9 Entire Agreement**. Notwithstanding the reference to any other agreement hereunder, this Agreement contains the entire understanding of the Parties hereto and thereto with reference to the transactions and matters contemplated hereby and thereby and supersedes all prior agreements, written or oral, among the Parties with respect hereto and thereto. If and to the extent that any provision of this Agreement is inconsistent or conflicts with the Merger Agreement, this Agreement will govern and control.

**7.10 Applicable Law; Jurisdiction.** This Agreement shall be governed by, and construed in accordance with, the laws of the State of Delaware, regardless of the laws that might otherwise govern under applicable principles of conflicts of laws. In any action or proceeding between the Parties arising out of or relating to this Agreement, each Party: (a) irrevocably and unconditionally consents and submits to the exclusive jurisdiction and venue of the Court of Chancery of the State of Delaware or, to the extent such court does not have subject matter jurisdiction, the United States District Court for the District of Delaware or, to the extent that neither of the foregoing courts has jurisdiction, the Superior Court of the State of Delaware; (b) agrees that all claims in respect of such action or proceeding shall be heard and determined exclusively in accordance with clause (a) of this Section 7.10; (c) waives any objection to laying venue in any such action or proceeding in such courts; (d) waives any objection that such courts are an inconvenient forum or do not have jurisdiction over any party; (e) agrees that service of process upon such party in any such action or proceeding shall be effective if notice is given in accordance with Section 7.1 of this Agreement; and (f) irrevocably and unconditionally waives the right to trial by jury.

{Remainder of page intentionally left blank}

IN WITNESS WHEREOF, each of the Parties has caused this Contingent Value Rights Agreement to be executed on its behalf by its duly authorized officers as of the day and year first above written.

**GEMPHIRE THERAPEUTICS INC.**

By: _____

Name: _____

Title: _____

**COMPUTERSHARE INC.**
**COMPUTERSHARE TRUST COMPANY, N.A.**

By: _____

Name: _____

Title: _____

**GRAND RAPIDS HOLDERS' REPRESENTATIVE, LLC**

By: _____

Name: _____

Title: _____

**Exhibit A**

Gemcabene Intellectual Property Rights

**Exhibit D**

**Form of Company / Parent Lock-Up Agreement**

Gemphire Therapeutics Inc.
17199 N. Laurel Park Drive, Suite 401
Livonia, MI 48152

NeuroBo Pharmaceuticals, Inc.
177 Huntington Avenue, Suite 1700
Boston, MA 02115

Lock-Up Agreement

July , 2019

This Lock-Up Agreement (this "***Agreement***") is executed in connection with the Agreement and Plan of Merger and Reorganization (the "***Merger Agreement***") by and among Gemphire Therapeutics Inc. (the "***Parent***"), GR Merger Sub Inc. ("***Merger Sub***"), and NeuroBo Pharmaceuticals, Inc. (the "***Company***"), dated as of July 24, 2019. Capitalized terms used herein but not defined shall have the meanings ascribed to such terms in the Merger Agreement.

In connection with, and as a material inducement to, each of the parties entering into the Merger Agreement and for other good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the undersigned, by executing this Agreement, irrevocably agrees that, without the prior written consent of the Parent and the Company, during the period commencing at the Effective Time and continuing until the end of the Lock-Up Period (as hereinafter defined), the undersigned will not: (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, make any short sale or otherwise transfer or dispose of or lend, directly or indirectly, any shares of Parent Common Stock or any securities convertible into, exercisable or exchangeable for or that represent the right to receive Parent Common Stock (including without limitation, Parent Common Stock which may be deemed to be beneficially owned by the undersigned in accordance with the rules and regulations of the SEC and securities which may be issued upon exercise of a stock option or warrant) whether now owned or hereafter acquired (collectively, the "***Parent Securities***"); (2) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Parent Securities, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of Parent Common Stock or such other securities, in cash or otherwise; (3) make any demand for or exercise any right with respect to, the registration of any Parent Common Stock or any security convertible into or exercisable or exchangeable for Parent Common Stock; (4) except for the Voting Agreement, dated as of the date hereof, by and among Parent, Merger Sub and the Company, grant any proxies or powers of attorney with respect to any Parent Securities, deposit any Parent Securities into a voting trust or enter into a voting agreement or similar arrangement or commitment with respect to any Parent Securities; or (5) publicly disclose the intention to do any of the foregoing (each of the foregoing restrictions, the "***Lock-Up Restrictions***").

Notwithstanding the terms of the foregoing paragraph, the Lock-Up Restrictions shall automatically terminate and cease to be effective on the date that is one-hundred and eighty (180) days after the Effective Time. The period during which the Lock-Up Restrictions apply to the Parent Securities shall be deemed the "***Lock-Up Period***" with respect thereto.

The undersigned agrees that the Lock-Up Restrictions preclude the undersigned from engaging in any hedging or other transaction with respect to any then-subject Parent Securities which is designed to or which reasonably could be expected to lead to or result in a sale or disposition of such Parent Securities even if such Parent Securities would be disposed of by someone other than the undersigned.

Such prohibited hedging or other transactions would include without limitation any short sale or any purchase, sale or grant of any right (including without limitation any put or call option) with respect to such Parent Securities or with respect to any security that includes, relates to, or derives any significant part of its value from such Parent Securities.

Notwithstanding the foregoing, the undersigned may transfer any of the Parent Securities (i) if the undersigned is a natural person, (1) to any person related to the undersigned by blood or adoption who is an immediate family member (not more remote than first cousin), or a family member by marriage or domestic partnership (a "***Family Member***"), (2) as a *bona fide* gift or charitable contribution, (3) to any trust for the direct or indirect benefit of the undersigned or any Family Member of the undersigned, (4) to the undersigned's estate, following the death of the undersigned, by will, intestacy or other operation of law, (5) by operation of law pursuant to a qualified domestic order or in connection with a divorce settlement, or (6) to any partnership, corporation or limited liability company which is controlled by the undersigned and/or by any Family Member of the undersigned; (ii) if the undersigned is a corporation, partnership, limited liability company, trust or other business entity, (1) to another corporation, partnership, limited liability company, trust or other business entity that is a direct or indirect affiliate (as defined in Rule 405 promulgated under the Securities Act of 1933, as amended) of the undersigned or (2) as distributions or dividends of shares of Parent Common Stock or any security convertible into or exercisable for Parent Common Stock to limited partners, limited liability company members or stockholders of the undersigned or holders of similar equity interests in the undersigned, (iii) if the undersigned is a trust, to the beneficiary of such trust, (iv) to a nominee or custodian of a person or entity to whom a disposition or transfer would be permissible under above clauses (i) through (iii), (v) to Parent in a transaction exempt from Section 16(b) of the Securities Exchange Act of 1934, as amended (the "***Exchange Act***") upon a vesting event of the Parent Securities or upon the exercise of options or warrants to purchase Parent Common Stock on a "cashless" or "net exercise" basis or to cover tax withholding obligations of the undersigned in connection with such vesting or exercise (but for the avoidance of doubt, excluding all manners of exercise that would involve a sale in the open market of any securities relating to such options or warrants, whether to cover the applicable aggregate exercise price, withholding tax obligations or otherwise), (vi) to Parent in connection with the termination of employment or other termination of a service provider and pursuant to agreements in effect as of the Effective Time whereby Parent has the option to repurchase such shares or securities, (vii) acquired by the undersigned in open market transactions after the Effective Time, (viii) pursuant to a bona fide third party tender offer, merger, consolidation or other similar transaction made to all holders of the Parent's capital stock involving a change of control of the Parent, provided that in the event that such tender offer, merger, consolidation or other such transaction is not completed, the Parent Securities shall remain subject to the restrictions contained in this Agreement, or (ix) pursuant to an order of a court or regulatory agency; *provided*, in the case of clauses (i)-(iv), that (A) such transfer shall not involve a disposition for value and (B) the transferee shall have executed and delivered a Lock-Up Agreement substantially identical with this Agreement with respect to the shares of Parent Common Stock or other securities so transferred; and *provided*, *further*, in the case of clauses (i)-(vii), no filing by any party under Section 16(a) of the Exchange Act shall be required or shall be made voluntarily in connection with such transfer.

In addition, the foregoing restrictions shall not apply to (i) the exercise of stock options granted pursuant to equity incentive plans existing immediately following the Effective Time, including the "net" exercise of such options in accordance with their terms and the surrender of Parent Common Stock in lieu of payment in cash of the exercise price and any tax withholding obligations due as a result of such exercise (but for the avoidance of doubt, excluding all manners of exercise that would involve a sale in the open market of any securities relating to such options, whether to cover the applicable aggregate exercise price, withholding tax obligations or otherwise); *provided* that it shall apply to any of the Parent Securities issued upon such exercise, (ii) conversion or exercise of warrants into Parent Common Stock or into any other security convertible into or exercisable for Parent

Common Stock that are outstanding as of the Effective Time (but for the avoidance of doubt, excluding all manners of conversion or exercise that would involve a sale in the open market of any securities relating to such warrants, whether to cover the applicable aggregate exercise price, withholding tax obligations or otherwise); *provided* that it shall apply to any of the Parent Securities issued upon such conversion or exercise; and *provided*, *further* that the recipient of any such Parent Common Stock agrees in writing with Parent to be bound by the terms of this Agreement, or (iii) the establishment of any contract, instruction or plan (a "***Plan***") that satisfies all of the requirements of Rule 10b5-1(c)(1)(i)(B) under the Exchange Act; *provided* that no sales of Parent Securities shall be made pursuant to such a Plan prior to the expiration of the Lock-Up Period, and such a Plan may only be established if no public announcement of the establishment or existence thereof and no filing with the Securities and Exchange Commission or other regulatory authority in respect thereof or transactions thereunder or contemplated thereby, by the undersigned, Parent or any other person, shall be required, and no such announcement or filing is made voluntarily, by the undersigned, Parent or any other person, prior to the expiration of the Lock-Up Period.

Any attempted transfer in violation of this Agreement will be of no effect and null and void, regardless of whether the purported transferee has any actual or constructive knowledge of the transfer restrictions set forth in this Agreement, and will not be recorded on the share register of Parent. In furtherance of the foregoing, Parent and its transfer agent and registrar are hereby authorized to decline to make any transfer of shares of Parent Common Stock if such transfer would constitute a violation or breach of this Agreement. Parent may cause the legend set forth below, or a legend substantially equivalent thereto, to be placed upon any certificate(s) or other documents, ledgers or instruments evidencing the undersigned's ownership of Parent Common Stock:

> THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO AND MAY ONLY BE TRANSFERRED IN COMPLIANCE WITH A LOCK-UP AGREEMENT, A COPY OF WHICH IS ON FILE AT THE PRINCIPAL OFFICE OF THE COMPANY.

The undersigned hereby represents and warrants that the undersigned has full power and authority to enter into this Agreement and that upon request, the undersigned will execute any additional documents reasonably necessary to ensure the validity or enforcement of this Agreement. All authority herein conferred or agreed to be conferred and any obligations of the undersigned shall be binding upon the successors, assigns, heirs or personal representatives of the undersigned.

The undersigned understands that the undersigned shall be released from all obligations under this Agreement upon the earlier of (i) the expiration of the Lock-Up Period, and (ii) if the Merger Agreement is terminated prior to the Effective Time pursuant to its terms, upon the date of such termination. The undersigned understands that Parent, the Merger Sub and the Company are entering into the Merger Agreement in reliance upon this Agreement.

Any and all remedies herein expressly conferred upon Parent and the Company will be deemed cumulative with and not exclusive of any other remedy conferred hereby, or by law or equity, and the exercise by Parent and/or the Company of any one remedy will not preclude the exercise of any other remedy. The undersigned agrees that irreparable damage would occur to Parent and the Company in the event that any provision of this Agreement were not performed in accordance with its specific terms or were otherwise breached. It is accordingly agreed the Parent and the Company shall be entitled to an injunction or injunctions to prevent breaches of this Agreement and to enforce specifically the terms and provisions hereof in any court of the United States or any state having jurisdiction, this being in addition to any other remedy to which Parent and the Company are entitled at law or in equity, and the undersigned waives any bond, surety or other security that might be required of Parent or the Company with respect thereto.

This Agreement and any claim, controversy or dispute arising under or related to this Agreement shall be governed by, and construed in accordance with, the laws of the State of Delaware, without regard to the conflict of laws principles thereof.

(*Signature Page Follows*)

This Agreement, and any certificates, documents, instruments and writings that are delivered pursuant hereto, constitutes the entire agreement and understanding of the Parent, the Company and the undersigned in respect of the subject matter hereof and supersedes all prior understandings, agreements or representations by or among the Parent, the Company and the undersigned, written or oral, to the extent they relate in any way to the subject matter hereof. This Agreement may be executed in several counterparts, each of which shall be deemed an original and all of which shall constitute one and the same instrument. The exchange of a fully executed Agreement (in counterparts or otherwise) by Parent and the undersigned by facsimile or electronic transmission in .pdf format shall be sufficient to bind such parties to the terms and conditions of this Agreement.

Very truly yours,

_____

Printed Name of Holder

By: _____

Signature

_____

Printed Name of Person Signing
(and indicate capacity of person signing if signing as custodian, trustee, or on behalf of an entity)

[*Lock-Up Agreement Signature Page*]

**FIRST AMENDMENT TO**
**AGREEMENT AND PLAN OF MERGER AND REORGANIZATION**

**THIS FIRST AMENDMENT TO AGREEMENT AND PLAN OF MERGER AND REORGANIZATION** (this ***"First Amendment"***) is entered into and made effective as of October 29, 2019 (the ***"Effective Date"***), by and among **GEMPHIRE THERAPEUTICS INC**., a Delaware corporation (***"Parent"***), **GR MERGER SUB INC.**, a Delaware corporation and wholly owned subsidiary of Parent (***"Merger Sub"***), and **NEUROBO PHARMACEUTICALS, INC**., a Delaware corporation (the ***"Company"***). Parent, Merger Sub and the Company are sometimes individually referred to herein as a ***"Party"*** or collectively referred to herein as the ***"Parties"***.

**RECITALS**

**A.** The Parties previously entered into that certain Agreement and Plan of Merger and Reorganization dated July 24, 2019 (the ***"Merger Agreement"***); and

**B.** Section 10.2 of the Merger Agreement provides that the Merger Agreement may be amended with the approval of the respective boards of directors of the Company, Merger Sub and Parent.

**C.** The Parties desire to amend the Merger Agreement pursuant to the terms and conditions of this First Amendment and the respective boards of directors of the Company, Merger Sub and Parent have each approved this First Amendment to be effective as of the date hereof.

**AGREEMENT**

**NOW, THEREFORE**, in consideration of the foregoing premises and the mutual covenants and conditions set forth below, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

**1. AMENDMENT TO SECTION 5.13.** Section 5.13 of the Merger Agreement is hereby deleted in its entirety and replaced with the following:

"5.13 ***Directors and Officers.*** The Parties shall use commercially reasonable efforts and take all necessary action so that immediately after the Effective Time, (a) the Parent Board is composed of 10 members, with one such member to be designated by Parent, and 9 such members to be designated by the Company, such designees to be provided prior to the filing of an amendment to the Registration Statement and (b) executive officers to be identified by the Company prior to the filing of the Registration Statement, are appointed to the applicable positions of Parent and the Surviving Corporation, in each case to serve in such positions effective as of the Effective Time until successors are duly elected or appointed and qualified in accordance with applicable Law. Prior to the Company sending the Information Statement, all members of the Parent Board and officers of Parent who will no longer be members of the Parent Board or officers of Parent shall provide executed resignation letters to be effective immediately after the Effective Time."

**2. AMENDMENT TO SECTION 8.5.** Section 8.5 of the Merger Agreement is hereby deleted in its entirety and replaced with the following:

"8.5 ***Minimum Parent Cash Amount.*** The Parent Cash Amount, calculated as of the Anticipated Closing Date, shall not be less than negative three million seven hundred fifty thousand dollars (–$3,750,000)."

**3. AMENDMENT TO SECTION 9.1(B).** Section 9.1(b) of the Merger Agreement is hereby deleted in its entirety and replaced with the following:

"(b) by either Parent or the Company if the Contemplated Transactions shall not have been consummated by February 22, 2020 (subject to possible extension as provided in this *Section 9.1(b)*, the ***"End Date"***); *provided, however,* that the right to terminate this Agreement under this *Section 9.1(b)* shall not be available to the Company, on the one hand, or to Parent, on the other hand, if such Party's action or failure to act has been a principal cause of the failure of the Contemplated Transactions to occur on or before the End Date and such action or failure to act constitutes a breach of this Agreement, *provided, further, however,* that, in the event that a request for additional information has been made by any Governmental Body, or in the event that the SEC has not declared effective under the Securities Act the Registration Statement by the date which is 60 days prior to the End Date, then either the Company or Parent shall be entitled to extend the End Date for an additional 60 days by written notice to the other Party;"

**4. AMENDMENT TO DEFINITION OF "PARENT CASH AMOUNT" IN EXHIBIT A.** The definition of "Parent Cash Amount" set forth in **Exhibit A** attached to the Merger Agreement is hereby deleted in its entirety and replaced with the following:

"***Parent Cash Amount***" means, as of the applicable measurement date, (i) the sum of (without duplication) all Cash and Cash Equivalents, short-term investments, accrued investment interest receivable, and any prepaid refundable deposits listed on *Section 1.12(a)* of the Parent Disclosure Schedule of Parent *less* (ii) the sum of (without duplication) (A) Parent's accounts payable, accrued expenses, and debt, and (B) any Parent Transaction Expenses; in each case, as of such applicable date and determined in a manner consistent with the manner in which such items were historically determined and in accordance with GAAP and Parent's audited financial statements and the Parent Balance Sheet. For clarity, any consideration (i) actually received or to be received by Parent prior to the Anticipated Closing Date pursuant to signed purchase agreements in effect as of the Determination Date and not subject to any contingencies in connection with any Parent Financing or (ii) actually received prior to the Determination Date by Parent in connection with any Permitted Disposition, net of the current fair value of all liabilities and obligations relating to such Permitted Disposition, shall be included in the Parent Cash Amount. Notwithstanding the foregoing, Parent Cash Amount shall not include any liabilities of Parent or payments of amounts by Parent that are covered by the Gemcabene Funding (as defined in the CVR Agreement)."

**5. PARENT BUDGET**. Parent delivered to the Company a revised operating budget concurrently with the execution of this First Amendment and all references to "Parent Budget" shall refer to the operating budget delivered with the execution of this First Amendment.

**6. APPLICABLE LAW.** This First Amendment shall be governed by, and construed in accordance with, the Laws of the State of Delaware, regardless of the Laws that might otherwise govern under applicable principles of conflicts of laws.

**7. HEADINGS.** The bold-faced headings contained in this First Amendment are for convenience of reference only, shall not be deemed to be a part of this First Amendment and shall not be referred to in connection with the construction or interpretation of this First Amendment.

**8. ASSIGNABILITY.** This First Amendment shall be binding upon, and shall be enforceable by and inure solely to the benefit of, the Parties and their respective successors and permitted assigns; provided, however, that neither this Amendment nor any of a Party's rights or obligations hereunder may be assigned or delegated by such Party without the prior written consent of the other Party, and any attempted assignment or delegation of this Agreement or any of such rights or obligations by such Party without the other Party's prior written consent shall be void and of no effect.

**9. CONSTRUCTION.** Unless otherwise defined herein, capitalized terms shall have the meanings set forth in the Merger Agreement. The terms of this First Amendment amend and modify the Merger Agreement as if fully set forth in the Merger Agreement. Upon the effectiveness of this First Amendment, all references in the Merger Agreement to "the Agreement" or "this Agreement," as applicable, shall refer to the Merger Agreement, as modified by this First Amendment. If there is any conflict between the terms, conditions and obligations of this First Amendment and the Merger Agreement, this First Amendment's terms, conditions and obligations shall control. All other provisions of the Merger Agreement not specifically modified by this First Amendment are expressly preserved. This First Amendment may be executed in multiple counterparts and transmitted by facsimile, by electronic mail in portable document format (***"PDF"***) form or by any other electronic means intended to preserve the original graphic and pictorial appearance of a Party's signature, with each such counterpart, facsimile or PDF signature constituting an original and all of which together constituting one and the same original.

**SIGNATURES ON THE FOLLOWING PAGE**

**IN WITNESS WHEREOF**, the Parties have executed this First Amendment as of the Effective Date.

**GEMPHIRE THERAPEUTICS INC.**

By: /s/ STEVE GULLANS

Name: Steven Gullans
Title: Chief Executive Officer and President

**GR MERGER SUB INC.**

By: /s/ STEVE GULLANS

Name: Steven Gullans
Title: Chief Executive Officer and President

**NEUROBO PHARMACEUTICALS, INC.**

By: /s/ JOHN L. BROOKS III

Name: John L. Brooks III
Title: CEO & President

SIGNATURE PAGE TO
FIRST AMENDMENT TO AGREEMENT AND PLAN OF MERGER AND REORGANIZATION

**ANNEX B**

**CERTIFICATE OF AMENDMENT**
**TO THE**
**THIRD AMENDED AND RESTATED**
**CERTIFICATE OF INCORPORATION**
**OF**
**GEMPHIRE THERAPEUTICS INC.**

**GEMPHIRE THERAPEUTICS INC.,** a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the "***DGCL***"), does hereby certify:

**FIRST:** The name of the corporation is Gemphire Therapeutics Inc. (the "***Corporation***").

**SECOND:** The Corporation was incorporated under the name Gemphire Therapeutics Inc. pursuant to an original Certificate of Incorporation filed with the Secretary of State of the State of Delaware (the "***Delaware Secretary***") on October 30, 2014. The Certificate of Incorporation was amended by a Certificate of Amendment filed with the Delaware Secretary on December 9, 2014. The Certificate of Incorporation was amended and restated pursuant to the terms and conditions of an Amended and Restated Certificate of Incorporation that was filed with the Delaware Secretary on March 31, 2015, was further amended and restated pursuant to the terms and conditions of a Second Amended and Restated Certificate of Incorporation that was filed with the Delaware Secretary on April 26, 2016, and was further amended and restated pursuant to the terms and conditions of a Third Amended and Restated Certificate of Incorporation that was filed with the Delaware Secretary on August 10, 2016.

**THIRD:** The Board of Directors (the "***Board***") of the Corporation, acting in accordance with the provisions of Sections 141 and 242 of the DGCL, adopted resolutions amending its Certificate of Incorporation as follows:

RESOLVED, that Article IV of the Third Amended and Restated Certificate of Incorporation, as presently in effect, of the Corporation is amended to add the following Section D:

"D. Effective at Eastern time, on the date of filing of this Certificate of Amendment to the Third Amended and Restated Certificate of Incorporation with the Secretary of State of the State of Delaware (the "***Effective Time***"), the shares of the Corporation's Common Stock, par value $0.001 per share, issued and outstanding immediately prior to the Effective Time and the shares of Common Stock issued and held in the treasury of the Corporation immediately prior to the Effective Time shall be combined into a smaller number of shares such that each , as determined by the Board, shares of issued and outstanding Common Stock immediately prior to the Effective Time are combined into one validly issued, fully paid and nonassessable share of Common Stock, par value $0.001 per share (the "***Reverse Split***"). Notwithstanding the immediately preceding sentence, no fractional shares shall be issued and, in lieu thereof, upon surrender after the Effective Time of a certificate which formerly represented shares of Common Stock that were issued and outstanding immediately prior to the Effective Time, any person who would otherwise be entitled to a fractional share of Common Stock as a result of the combination, following the Effective Time (after aggregating all fractional shares of Common Stock otherwise issuable to such holder), shall be entitled to receive a cash payment equal to the fraction to which such holder would otherwise be entitled multiplied by the closing price of the Corporation's Common Stock as reported on the Nasdaq Capital Market on the date of the filing of this Certificate of Amendment to the Third Amended and Restated Certificate of Incorporation with the Secretary of State of the State of Delaware (as adjusted to give effect to the Reverse Split), rounded upto the nearest whole cent.

Each stock certificate that, immediately prior to the Effective Time, represented shares of Common Stock that were issued and outstanding immediately prior to the Effective Time shall, from and after the Effective Time, automatically and without the necessity of presenting the same for exchange, represent that number of whole shares of Common Stock after the Effective Time into which the shares of Common Stock formerly represented by such certificate shall have been combined (as well as the right to receive cash in lieu of fractional shares of Common Stock after the Effective Time), provided however, that each person of record holding a certificate that represented shares of Common Stock that were issued and outstanding immediately prior to the Effective Time shall receive, upon surrender of such certificate, a new certificate evidencing and representing the number of whole shares of Common stock after the Effective Time into which the shares of Common Stock formerly represented by such certificate shall have been combined."

**FOURTH:** Thereafter, pursuant to a resolution by the Board, this Certificate of Amendment was submitted to the stockholders of the Corporation for their approval in accordance with the provisions of Section 211 and 242 of the DGCL. Accordingly, said proposed amendment has been adopted in accordance with Section 242 of the DGCL.

**IN WITNESS WHEREOF**, **GEMPHIRE THERAPEUTICS INC.** has caused this Certificate of Amendment to be signed by its duly authorized officer on , 2019.

**GEMPHIRE THERAPEUTICS INC.**

By: _____

Name:
Title:

**ANNEX C**

**CERTIFICATE OF AMENDMENT**
**TO THE**
**THIRD AMENDED AND RESTATED**
**CERTIFICATE OF INCORPORATION**
**OF**
**GEMPHIRE THERAPEUTICS INC.**

**GEMPHIRE THERAPEUTICS INC.,** a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the "***DGCL***"), does hereby certify:

**FIRST:** The name of the corporation is Gemphire Therapeutics Inc. (the "***Corporation***").

**SECOND:** The Corporation was incorporated under the name Gemphire Therapeutics Inc. pursuant to an original Certificate of Incorporation filed with the Secretary of State of the State of Delaware (the "***Delaware Secretary***") on October 30, 2014. The Certificate of Incorporation was amended by a Certificate of Amendment filed with the Delaware Secretary on December 9, 2014. The Certificate of Incorporation was amended and restated pursuant to the terms and conditions of an Amended and Restated Certificate of Incorporation that was filed with the Delaware Secretary on March 31, 2015, was further amended and restated pursuant to the terms and conditions of a Second Amended and Restated Certificate of Incorporation that was filed with the Delaware Secretary on April 26, 2016, and was further amended and restated pursuant to the terms and conditions of a Third Amended and Restated Certificate of Incorporation that was filed with the Delaware Secretary on August 10, 2016 (the "***Prior Certificate***"). A Certificate of Amendment to the Prior Certificate was filed with the Secretary of State of the State of Delaware on , 2019.

**THIRD:** The Board of Directors (the "***Board***") of the Corporation, acting in accordance with the provisions of Sections 141 and 242 of the DGCL, adopted resolutions amending the Prior Certificate, as amended, as follows:

Article I of the Prior Certificate, as amended, of the Corporation is hereby amended and restated in its entirety as follows:

"ARTICLE I: The name of this Corporation is NeuroBo Pharmaceuticals, Inc. (the "***Corporation***")."

**FOURTH:** Thereafter, pursuant to a resolution by the Board, this Certificate of Amendment was submitted to the stockholders of the Corporation for their approval in accordance with the provisions of Section 211 and 242 of the DGCL. Accordingly, said proposed amendment has been adopted in accordance with Section 242 of the DGCL.

**IN WITNESS WHEREOF**, **GEMPHIRE THERAPEUTICS INC.** has caused this Certificate of Amendment to be signed by its duly authorized officer on , 2019.

**GEMPHIRE THERAPEUTICS INC.**

By: _____
Name:
Title:

**Annex D**

**GEMPHIRE THERAPEUTICS INC.**
**2019 EQUITY INCENTIVE PLAN**

1. *DEFINITIONS.*

Unless otherwise specified or unless the context otherwise requires, the following terms, as used in this Gemphire Therapeutics Inc. 2019 Equity Incentive Plan, have the following meanings:

*Administrator* means the Board of Directors, unless it has delegated power to act on its behalf to the Committee, in which case the term Administrator means the Committee.

*Affiliate* means a corporation or other entity, which, for purposes of Section 424 of the Code, is a parent or subsidiary of the Company, direct or indirect.

*Agreement* means a written or electronic document setting forth the terms of a Stock Right delivered pursuant to the Plan in such form as the Administrator shall approve.

*Board of Directors* means the Board of Directors of the Company.

*Cause* means, with respect to a Participant (a) dishonesty with respect to the Company or any Affiliate, (b) insubordination, substantial malfeasance or non-feasance of duty, (c) unauthorized disclosure of confidential information, (d) breach by a Participant of any provision of any employment, consulting, advisory, nondisclosure, non-competition or similar agreement between the Participant and the Company or any Affiliate, and (e) conduct substantially prejudicial to the business of the Company or any Affiliate; provided, however, that any provision in an agreement between a Participant and the Company or an Affiliate, which contains a conflicting definition of Cause for termination and which is in effect at the time of such termination, shall supersede this definition with respect to that Participant. The determination of the Administrator as to the existence of Cause will be conclusive on the Participant and the Company.

*Code* means the United States Internal Revenue Code of 1986, as amended including any successor statute, regulation and guidance thereto.

*Committee* means the committee of the Board of Directors to which the Board of Directors has delegated power to act under or pursuant to the provisions of the Plan.

*Common Stock* means shares of the Company's common stock, $0.001 par value per share.

*Company* means Gemphire Therapeutics Inc., a Delaware corporation.

*Consultant* means any natural person who is an advisor or consultant who provides bona fide services to the Company or its Affiliates, provided that such services are not in connection with the offer or sale of securities in a capital raising transaction, and do not directly or indirectly promote or maintain a market for the Company's or its Affiliates' securities.

*Corporate Transaction* means a merger, consolidation, or sale of all or substantially all of the Company's assets or the acquisition of all of the outstanding voting stock of the Company in a single transaction or a series of related transactions by a single entity other than a transaction to merely change the state of incorporation.

*Disability* or *Disabled* means permanent and total disability as defined in Section 22(e)(3) of the Code.

*Employee* means any employee of the Company or of an Affiliate (including, without limitation, an employee who is also serving as an officer or director of the Company or of an Affiliate),

designated by the Administrator to be eligible to be granted one or more Stock Rights under the Plan.

*Exchange Act* means the United States Securities Exchange Act of 1934, as amended.

*Fair Market Value* of a Share of Common Stock means:

If the Common Stock is listed on a national securities exchange or traded in the over-the-counter market and sales prices are regularly reported for the Common Stock, the closing or, if not applicable, the last price of the Common Stock on the composite tape or other comparable reporting system for the trading day on the applicable date and if such applicable date is not a trading day, the last market trading day prior to such date;

If the Common Stock is not traded on a national securities exchange but is traded on the over-the-counter market, if sales prices are not regularly reported for the Common Stock for the trading day referred to in clause (1), and if bid and asked prices for the Common Stock are regularly reported, the mean between the bid and the asked price for the Common Stock at the close of trading in the over-the-counter market for most recent the trading day on which Common Stock was traded on the applicable date and if such applicable date is not a trading day, the last market trading day prior to such date; and

If the Common Stock is neither listed on a national securities exchange nor traded in the over-the-counter market, such value as the Administrator, in good faith, shall determine in compliance with applicable laws.

*Fully Diluted Shares* as of a date means an amount equal to the number of shares of Common Stock (i) outstanding and (ii) issuable upon exercise, conversion or settlement of outstanding Stock Rights under the Plan and any other outstanding options, warrants or other securities of the Company that are (directly or indirectly) convertible or exchangeable into or exercisable for shares of Common Stock, in each case as of the close of business of the Company on such date. For purposes of calculating the number of Fully Diluted Shares: (x) if the number of shares subject to an outstanding Stock Right is variable on the applicable date, then the number of shares of Common Stock issuable upon exercise or settlement of the Stock Right shall be the maximum number of shares that could be received under such Stock Right and (y) if two or more types of Stock Rights are granted to a Participant in tandem with each other such that the exercise of one type of Stock Right with respect to a number of shares cancels at least an equal number of shares of the other, then the number of shares of Common Stock issuable upon exercise or settlement of the Stock Right shall be the largest number of shares that would be counted under either of the Stock Rights.

*ISO* means a stock option intended to qualify as an incentive stock option under Section 422 of the Code.

*Non-Qualified Option* means a stock option which is not intended to qualify as an ISO.

*Option* means an ISO or Non-Qualified Option granted under the Plan.

*Participant* means an Employee, director or Consultant of the Company or an Affiliate to whom one or more Stock Rights are granted under the Plan. As used herein, "Participant" shall include "Participant's Survivors" where the context requires.

*Performance-Based Award* means a Stock Grant or Stock-Based Award which vests based on the attainment of written Performance Goals as set forth in Paragraph 9 hereof.

*Performance Goals* means performance goals determined by the Committee in its sole discretion and set forth in an Agreement. The satisfaction of Performance Goals shall be subject to certification by the Committee. The Committee has the authority to take appropriate action with

respect to the Performance Goals (including, without limitation, making adjustments to the Performance Goals or determining the satisfaction of the Performance Goals in connection with a Corporate Transaction) provided that any such action does not otherwise violate the terms of the Plan.

*Plan* means this Gemphire Therapeutics Inc. 2019 Equity Incentive Plan.

*Securities Act* means the United States Securities Act of 1933, as amended.

*Shares* means shares of the Common Stock as to which Stock Rights have been or may be granted under the Plan or any shares of capital stock into which the Shares are changed or for which they are exchanged within the provisions of Paragraph 3 of the Plan. The Shares issued under the Plan may be authorized and unissued shares or shares held by the Company in its treasury, or both.

*Stock-Based Award* means a grant by the Company under the Plan of an equity award or an equity based award, which is not an Option or a Stock Grant.

*Stock Grant* means a grant by the Company of Shares under the Plan.

*Stock Right* means a right to Shares or the value of Shares of the Company granted pursuant to the Plan—an ISO, a Non-Qualified Option, a Stock Grant or a Stock-Based Award.

*Survivor* means a deceased Participant's legal representatives and/or any person or persons who acquired the Participant's rights to a Stock Right by will or by the laws of descent and distribution.

2. *PURPOSES OF THE PLAN.*

The Plan is intended to encourage ownership of Shares by Employees and directors of and certain Consultants to the Company and its Affiliates in order to attract and retain such people, to induce them to work for the benefit of the Company or of an Affiliate and to provide additional incentive for them to promote the success of the Company or of an Affiliate. The Plan provides for the granting of ISOs, Non-Qualified Options, Stock Grants and Stock-Based Awards.

3. *SHARES SUBJECT TO THE PLAN.*

(a) *Plan Shares:*

(i) (a)The number of Shares which may be issued from time to time pursuant to this Plan shall be the sum of: (i) 75,000,000 shares of Common Stock and (ii) any shares of Common Stock that are represented by awards granted under the NeuroBo Pharmaceuticals, Inc. 2018 Stock Plan that are forfeited, expire or are cancelled without delivery of shares of Common Stock or which result in the forfeiture of shares of Common Stock back to the Company on or after December 6, 2019, or the equivalent of such number of Shares after the Administrator, in its sole discretion, has interpreted the effect of any stock split, stock dividend, combination, recapitalization or similar transaction in accordance with Paragraph 25 of this Plan; provided, however, that no more than 839,000 Shares shall be added to the Plan pursuant to subsection (ii).

(ii) Notwithstanding Subparagraph (a) above, on the first day of each fiscal year of the Company during the period beginning in fiscal year 2020, and ending on the second day of fiscal year 2029, the number of Shares that may be issued from time to time pursuant to the Plan, shall be increased by an amount equal to the lesser of (i) 4% of the number of outstanding shares of Common Stock on such date and (ii) an amount determined by the Administrator.

(iii) Notwithstanding any other provision of this Section 3, the aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options under this Plan will be 167,000,000 shares of Common Stock.

(b) If an Option ceases to be "outstanding", in whole or in part (other than by exercise), or if the Company shall reacquire (at not more than its original issuance price) any Shares issued pursuant to a Stock Grant or Stock-Based Award, or if any Stock Right expires or is forfeited, cancelled, or otherwise terminated or results in any Shares not being issued, the unissued or reacquired Shares which were subject to such Stock Right shall again be available for issuance from time to time pursuant to this Plan. Notwithstanding the foregoing, if a Stock Right is exercised, in whole or in part, by tender or withholding of Shares or if the Company or an Affiliate's tax withholding obligation is satisfied by the tender or withholding of Shares, the number of Shares deemed to have been issued under the Plan for purposes of the limitation set forth in Paragraph 3(a) above shall be the number of Shares that were subject to the Stock Right or portion thereof, and not the net number of Shares actually issued. In addition, Shares repurchased by the Company with the proceeds of the option exercise price may not be reissued under the Plan. However, in the case of ISOs, the foregoing provisions shall be subject to any limitations under the Code.

4. *ADMINISTRATION OF THE PLAN.*

The Administrator of the Plan will be the Board of Directors, except to the extent the Board of Directors delegates its authority to the Committee, in which case the Committee shall be the Administrator. Subject to the provisions of the Plan, the Administrator is authorized to:

(a) Interpret the provisions of the Plan and all Stock Rights and to make all rules and determinations which it deems necessary or advisable for the administration of the Plan;

(b) Determine which Employees, directors and Consultants shall be granted Stock Rights;

(c) Determine the number of Shares for which a Stock Right or Stock Rights shall be granted, provided however that in no event shall the aggregate grant date fair value of Stock Rights to be granted to any non-employee director under the Plan in any calendar year exceed $500,000, except that the aggregate grant date fair value of Stock Rights to be granted to any non-employee director in the calendar year in which such director commences his or her service with the Company shall not exceed $1,000,000;

(d) Specify the terms and conditions upon which a Stock Right or Stock Rights may be granted;

(e) Amend any term or condition of any outstanding Stock Right, other than reducing the exercise price or purchase price or extending the expiration date of an Option, provided that (i) such term or condition as amended is not prohibited by the Plan; (ii) any such amendment shall not impair the rights of a Participant under any Stock Right previously granted without such Participant's consent or in the event of death of the Participant the Participant's Survivors; and (iii) any such amendment shall be made only after the Administrator determines whether such amendment would cause any adverse tax consequences to the Participant, including, but not limited to, the annual vesting limitation contained in Section 422(d) of the Code and described in Paragraph 6(b)(iv) below with respect to ISOs and pursuant to Section 409A of the Code;

(f) Determine and make any adjustments in the Performance Goals included in any Performance-Based Awards in compliance with (d) above; and

(g) Adopt any sub-plans applicable to residents of any specified jurisdiction as it deems necessary or appropriate in order to comply with or take advantage of any tax or other laws applicable to the Company, any Affiliate or to Participants or to otherwise facilitate the administration of the Plan, which sub-plans may include additional restrictions or conditions applicable to Stock Rights or Shares issuable pursuant to a Stock Right;

provided, however, that all such interpretations, rules, determinations, terms and conditions shall be made and prescribed in the context of potential tax consequences under Section 409A of the Code and

preserving the tax status under Section 422 of the Code of those Options which are designated as ISOs. Subject to the foregoing, the interpretation and construction by the Administrator of any provisions of the Plan or of any Stock Right granted under it shall be final, unless otherwise determined by the Board of Directors, if the Administrator is the Committee. In addition, if the Administrator is the Committee, the Board of Directors may take any action under the Plan that would otherwise be the responsibility of the Committee.

To the extent permitted under applicable law, the Board of Directors or the Committee may allocate all or any portion of its responsibilities and powers to any one or more of its members and may delegate all or any portion of its responsibilities and powers to any other person selected by it. The Board of Directors or the Committee may revoke any such allocation or delegation at any time. Notwithstanding the foregoing, only the Board of Directors or the Committee shall be authorized to grant a Stock Right to any director of the Company or to any "officer" of the Company as defined by Rule 16a-1 under the Exchange Act.

5. *ELIGIBILITY FOR PARTICIPATION.*

The Administrator will, in its sole discretion, name the Participants in the Plan; provided, however, that each Participant must be an Employee, director or Consultant of the Company or of an Affiliate at the time a Stock Right is granted. Notwithstanding the foregoing, the Administrator may authorize the grant of a Stock Right to a person not then an Employee, director or Consultant of the Company or of an Affiliate; provided, however, that the actual grant of such Stock Right shall be conditioned upon such person becoming eligible to become a Participant at or prior to the time of the execution of the Agreement evidencing such Stock Right. ISOs may be granted only to Employees who are deemed to be residents of the United States for tax purposes. Non-Qualified Options, Stock Grants and Stock-Based Awards may be granted to any Employee, director or Consultant of the Company or an Affiliate. The granting of any Stock Right to any individual shall neither entitle that individual to, nor disqualify him or her from, participation in any other grant of Stock Rights or any grant under any other benefit plan established by the Company or any Affiliate for Employees, directors or Consultants.

6. *TERMS AND CONDITIONS OF OPTIONS.*

Each Option shall be set forth in an Option Agreement, duly executed by the Company and, to the extent required by law or requested by the Company, by the Participant. The Administrator may provide that Options be granted subject to such terms and conditions, consistent with the terms and conditions specifically required under this Plan, as the Administrator may deem appropriate including, without limitation, subsequent approval by the shareholders of the Company of this Plan or any amendments thereto. The Option Agreements shall be subject to at least the following terms and conditions:

(a) *Non-Qualified Options*: Each Option intended to be a Non-Qualified Option shall be subject to the terms and conditions which the Administrator determines to be appropriate and in the best interest of the Company, subject to the following minimum standards for any such Non-Qualified Option:

(i) *Exercise Price*: Each Option Agreement shall state the exercise price (per share) of the Shares covered by each Option, which exercise price shall be determined by the Administrator and shall be at least equal to the Fair Market Value per share of the Common Stock on the date of grant of the Option.

(ii) *Number of Shares*: Each Option Agreement shall state the number of Shares to which it pertains.

(iii) *Vesting*: Each Option Agreement shall state the date or dates on which it first is exercisable and the date after which it may no longer be exercised, and may provide that the Option rights accrue or become exercisable in installments over a period of months or years, or upon the occurrence of certain performance conditions or the attainment of stated goals or events.

(iv) *Additional Conditions*: Exercise of any Option may be conditioned upon the Participant's execution of a shareholders agreement in a form satisfactory to the Administrator providing for certain protections for the Company and its other shareholders, including requirements that:

A. The Participant's or the Participant's Survivors' right to sell or transfer the Shares may be restricted; and

B. The Participant or the Participant's Survivors may be required to execute letters of investment intent and must also acknowledge that the Shares will bear legends noting any applicable restrictions.

(v) *Term of Option*: Each Option shall terminate not more than ten years from the date of the grant or at such earlier time as the Option Agreement may provide.

(b) *ISOs*: Each Option intended to be an ISO shall be issued only to an Employee who is deemed to be a resident of the United States for tax purposes, and shall be subject to the following terms and conditions, with such additional restrictions or changes as the Administrator determines are appropriate but not in conflict with Section 422 of the Code and relevant regulations and rulings of the Internal Revenue Service:

(iv) *Minimum Standards*: The ISO shall meet the minimum standards required of Non-Qualified Options, as described in Paragraph 6(a) above, except clause (i) and (v) thereunder.

(v) *Exercise Price*: Immediately before the ISO is granted, if the Participant owns, directly or by reason of the applicable attribution rules in Section 424(d) of the Code:

A. 10% *or less* of the total combined voting power of all classes of stock of the Company or an Affiliate, the exercise price per share of the Shares covered by each ISO shall not be less than 100% of the Fair Market Value per share of the Common Stock on the date of grant of the Option; or

B. More than 10% of the total combined voting power of all classes of stock of the Company or an Affiliate, the exercise price per share of the Shares covered by each ISO shall not be less than 110% of the Fair Market Value per share of the Common Stock on the date of grant of the Option.

(vi) *Term of Option*: For Participants who own:

A. 10% *or less* of the total combined voting power of all classes of stock of the Company or an Affiliate, each ISO shall terminate not more than ten years from the date of the grant or at such earlier time as the Option Agreement may provide; or

B. More than 10% of the total combined voting power of all classes of stock of the Company or an Affiliate, each ISO shall terminate not more than five years from the date of the grant or at such earlier time as the Option Agreement may provide.

(vii) *Limitation on Yearly Exercise*: The Option Agreements shall restrict the amount of ISOs which may become exercisable in any calendar year (under this or any other ISO plan of the Company or an Affiliate) so that the aggregate Fair Market Value (determined on the

date each ISO is granted) of the stock with respect to which ISOs are exercisable for the first time by the Participant in any calendar year does not exceed $100,000.

7. *TERMS AND CONDITIONS OF STOCK GRANTS.*

Each Stock Grant to a Participant shall state the principal terms in an Agreement duly executed by the Company and, to the extent required by law or requested by the Company, by the Participant. The Agreement shall be in a form approved by the Administrator and shall contain terms and conditions which the Administrator determines to be appropriate and in the best interest of the Company, subject to the following minimum standards:

(a) Each Agreement shall state the purchase price per share, if any, of the Shares covered by each Stock Grant, which purchase price shall be determined by the Administrator but shall not be less than the minimum consideration required by the Delaware General Corporation Law, if any, on the date of the grant of the Stock Grant;

(b) Each Agreement shall state the number of Shares to which the Stock Grant pertains; and

(c) Each Agreement shall include the terms of any right of the Company to restrict or reacquire the Shares subject to the Stock Grant, including the time period or attainment of Performance Goals or such other performance criteria upon which such rights shall accrue and the purchase price therefor, if any.

8. *TERMS AND CONDITIONS OF OTHER STOCK-BASED AWARDS.*

The Administrator shall have the right to grant other Stock-Based Awards based upon the Common Stock having such terms and conditions as the Administrator may determine, including, without limitation, the grant of Shares based upon certain conditions, the grant of securities convertible into Shares and the grant of stock appreciation rights, phantom stock awards or stock units. The principal terms of each Stock-Based Award shall be set forth in an Agreement, duly executed by the Company and, to the extent required by law or requested by the Company, by the Participant. The Agreement shall be in a form approved by the Administrator and shall contain terms and conditions which the Administrator determines to be appropriate and in the best interest of the Company. Each Agreement shall include the terms of any right of the Company including the right to terminate the Stock-Based Award without the issuance of Shares, the terms of any vesting conditions, Performance Goals or events upon which Shares shall be issued. Under no circumstances may the Agreement covering stock appreciation rights (a) have an exercise or base price (per share) that is less than the Fair Market Value per share of Common Stock on the date of grant or (b) expire more than ten years following the date of grant.

The Company intends that the Plan and any Stock-Based Awards granted hereunder be exempt from the application of Section 409A of the Code or meet the requirements of paragraphs (2), (3) and (4) of subsection (a) of Section 409A of the Code, to the extent applicable, and be operated in accordance with Section 409A so that any compensation deferred under any Stock-Based Award (and applicable investment earnings) shall not be included in income under Section 409A of the Code. Any ambiguities in the Plan shall be construed to effect the intent as described in this Paragraph 8.

9. *PERFORMANCE-BASED AWARDS.*

The Committee shall determine whether, with respect to a performance period, the applicable Performance Goals have been met with respect to a given Participant and, if they have, to so certify and ascertain the amount of the applicable Performance-Based AWARD. No Performance-Based Awards will be issued for such performance period until such certification is made by the Committee. The number of Shares issued in respect of a Performance-Based Award determined by the Committee for a performance period shall be paid to the Participant at such time as determined by the Committee in its sole discretion after the end of such performance period.

10. *EXERCISE OF OPTIONS AND ISSUE OF SHARES.*

An Option (or any part or installment thereof) shall be exercised by giving written notice to the Company or its designee (in a form acceptable to the Administrator, which may include electronic notice), together with provision for payment of the aggregate exercise price in accordance with this Paragraph for the Shares as to which the Option is being exercised, and upon compliance with any other condition(s) set forth in the Option Agreement. Such notice shall be signed by the person exercising the Option (which signature may be provided electronically in a form acceptable to the Administrator), shall state the number of Shares with respect to which the Option is being exercised and shall contain any representation required by the Plan or the Option Agreement. Payment of the exercise price for the Shares as to which such Option is being exercised shall be made (a) in United States dollars in cash or by check; or (b) at the discretion of the Administrator, through delivery of shares of Common Stock held for at least six months (if required to avoid negative accounting treatment) having a Fair Market Value equal as of the date of the exercise to the aggregate cash exercise price for the number of Shares as to which the Option is being exercised; or (c) at the discretion of the Administrator, by having the Company retain from the Shares otherwise issuable upon exercise of the Option, a number of Shares having a Fair Market Value equal as of the date of exercise to the aggregate exercise price for the number of Shares as to which the Option is being exercised; or (d) at the discretion of the Administrator, in accordance with a cashless exercise program established with a securities brokerage firm, and approved by the Administrator; or (e) at the discretion of the Administrator, by any combination of (a), (b), (c) and (d) above or (f) at the discretion of the Administrator, by payment of such other lawful consideration as the Administrator may determine. Notwithstanding the foregoing, the Administrator shall accept only such payment on exercise of an ISO as is permitted by Section 422 of the Code.

The Company shall then reasonably promptly deliver the Shares as to which such Option was exercised to the Participant (or to the Participant's Survivors, as the case may be). In determining what constitutes "reasonably promptly," it is expressly understood that the issuance and delivery of the Shares may be delayed by the Company in order to comply with any law or regulation (including, without limitation, state securities or "blue sky" laws) which requires the Company to take any action with respect to the Shares prior to their issuance. The Shares shall, upon delivery, be fully paid, non-assessable Shares.

11. *PAYMENT IN CONNECTION WITH THE ISSUANCE OF STOCK GRANTS AND STOCK-BASED AWARDS AND ISSUE OF SHARES.*

Any Stock Grant or Stock-Based Award requiring payment of a purchase price for the Shares as to which such Stock Grant or Stock-Based Award is being granted shall be made (a) in United States dollars in cash or by check; or (b) at the discretion of the Administrator, through delivery of shares of Common Stock held for at least six months (if required to avoid negative accounting treatment) and having a Fair Market Value equal as of the date of payment to the purchase price of the Stock Grant or Stock-Based Award; or (c) at the discretion of the Administrator, by any combination of (a) and (b) above; or (d) at the discretion of the Administrator, by payment of such other lawful consideration as the Administrator may determine.

The Company shall when required by the applicable Agreement, reasonably promptly deliver the Shares as to which such Stock Grant or Stock-Based Award was made to the Participant (or to the Participant's Survivors, as the case may be), subject to any escrow provision set forth in the applicable Agreement. In determining what constitutes "reasonably promptly," it is expressly understood that the issuance and delivery of the Shares may be delayed by the Company in order to comply with any law or regulation (including, without limitation, state securities or "blue sky" laws) which requires the Company to take any action with respect to the Shares prior to their issuance.

12. *RIGHTS AS A SHAREHOLDER.*

No Participant to whom a Stock Right has been granted shall have rights as a shareholder with respect to any Shares covered by such Stock Right except after due exercise of an Option or issuance of Shares as set forth in any Agreement, tender of the aggregate exercise or purchase price, if any, for the Shares being purchased and registration of the Shares in the Company's share register in the name of the Participant.

13. *ASSIGNABILITY AND TRANSFERABILITY OF STOCK RIGHTS.*

By its terms, a Stock Right granted to a Participant shall not be transferable by the Participant other than (i) by will or by the laws of descent and distribution, or (ii) as approved by the Administrator in its discretion and set forth in the applicable Agreement provided that no Stock Right may be transferred by a Participant for value. Notwithstanding the foregoing, an ISO transferred except in compliance with clause (i) above shall no longer qualify as an ISO. The designation of a beneficiary of a Stock Right by a Participant, with the prior approval of the Administrator and in such form as the Administrator shall prescribe, shall not be deemed a transfer prohibited by this Paragraph. Except as provided above during the Participant's lifetime a Stock Right shall only be exercisable by or issued to such Participant (or his or her legal representative) and shall not be assigned, pledged or hypothecated in any way (whether by operation of law or otherwise) and shall not be subject to execution, attachment or similar process. Any attempted transfer, assignment, pledge, hypothecation or other disposition of any Stock Right or of any rights granted thereunder contrary to the provisions of this Plan, or the levy of any attachment or similar process upon a Stock Right, shall be null and void.

14. *EFFECT ON OPTIONS OF TERMINATION OF SERVICE OTHER THAN FOR CAUSE OR DEATH OR DISABILITY.*

Except as otherwise provided in a Participant's Option Agreement, in the event of a termination of service (whether as an Employee, director or Consultant) with the Company or an Affiliate before the Participant has exercised an Option, the following rules apply:

(a) A Participant who ceases to be an Employee, director or Consultant of the Company or of an Affiliate (for any reason other than termination for Cause, Disability, or death for which events there are special rules in Paragraphs 15, 16, and 17, respectively), may exercise any Option granted to him or her to the extent that the Option is exercisable on the date of such termination of service, but only within such term as the Administrator has designated in a Participant's Option Agreement.

(b) Except as provided in Subparagraph (c) below, or Paragraph 16 or 17, in no event may an Option intended to be an ISO, be exercised later than three months after the Participant's termination of employment.

(c) The provisions of this Paragraph, and not the provisions of Paragraph 16 or 17, shall apply to a Participant who subsequently becomes Disabled or dies after the termination of employment, director status or consultancy; provided, however, in the case of a Participant's Disability or death within three months after the termination of employment, director status or consultancy, the Participant or the Participant's Survivors may exercise the Option within one year after the date of the Participant's termination of service, but in no event after the date of expiration of the term of the Option.

(d) Notwithstanding anything herein to the contrary, if subsequent to a Participant's termination of employment, termination of director status or termination of consultancy, but prior to the exercise of an Option, the Administrator determines that, either prior or subsequent to the Participant's termination, the Participant engaged in conduct which would constitute Cause, then such Participant shall forthwith cease to have any right to exercise any Option.

(e) A Participant to whom an Option has been granted under the Plan who is absent from the Company or an Affiliate because of temporary disability (any disability other than a Disability as defined in Paragraph 1 hereof), or who is on leave of absence for any purpose, shall not, during the period of any such absence, be deemed, by virtue of such absence alone, to have terminated such Participant's employment, director status or consultancy with the Company or with an Affiliate, except as the Administrator may otherwise expressly provide; provided, however, that, for ISOs, any leave of absence granted by the Administrator of greater than three months, unless pursuant to a contract or statute that guarantees the right to reemployment, shall cause such ISO to become a Non-Qualified Option on the date that is six months following the commencement of such leave of absence.

(f) Except as required by law or as set forth in a Participant's Option Agreement, Options granted under the Plan shall not be affected by any change of a Participant's status within or among the Company and any Affiliates, so long as the Participant continues to be an Employee, director or Consultant of the Company or any Affiliate.

15. *EFFECT ON OPTIONS OF TERMINATION OF SERVICE FOR CAUSE.*

Except as otherwise provided in a Participant's Option Agreement, the following rules apply if the Participant's service (whether as an Employee, director or Consultant) with the Company or an Affiliate is terminated for Cause prior to the time that all his or her outstanding Options have been exercised:

(a) All outstanding and unexercised Options as of the time the Participant is notified his or her service is terminated for Cause will immediately be forfeited.

(b) Cause is not limited to events which have occurred prior to a Participant's termination of service, nor is it necessary that the Administrator's finding of Cause occur prior to termination. If the Administrator determines, subsequent to a Participant's termination of service but prior to the exercise of an Option, that either prior or subsequent to the Participant's termination the Participant engaged in conduct which would constitute Cause, then the right to exercise any Option is forfeited.

16. *EFFECT ON OPTIONS OF TERMINATION OF SERVICE FOR DISABILITY.*

Except as otherwise provided in a Participant's Option Agreement:

(a) A Participant who ceases to be an Employee, director or Consultant of the Company or of an Affiliate by reason of Disability may exercise any Option granted to such Participant to the extent that the Option has become exercisable but has not been exercised on the date of the Participant's termination of service due to Disability; and in the event rights to exercise the Option accrue periodically, to the extent of a pro rata portion through the date of the Participant's termination of service due to Disability of any additional vesting rights that would have accrued on the next vesting date had the Participant not become Disabled. The proration shall be based upon the number of days accrued in the current vesting period prior to the date of the Participant's termination of service due to Disability.

(b) A Disabled Participant may exercise the Option only within the period ending one year after the date of the Participant's termination of service due to Disability, notwithstanding that the Participant might have been able to exercise the Option as to some or all of the Shares on a later date if the Participant had not been terminated due to Disability and had continued to be an Employee, director or Consultant or, if earlier, within the originally prescribed term of the Option.

(c) The Administrator shall make the determination both of whether Disability has occurred and the date of its occurrence (unless a procedure for such determination is set forth in another agreement between the Company and such Participant, in which case such procedure shall be used

for such determination). If requested, the Participant shall be examined by a physician selected or approved by the Administrator, the cost of which examination shall be paid for by the Company.

17. *EFFECT ON OPTIONS OF DEATH WHILE AN EMPLOYEE, DIRECTOR OR CONSULTANT.*

Except as otherwise provided in a Participant's Option Agreement:

(a) In the event of the death of a Participant while the Participant is an Employee, director or Consultant of the Company or of an Affiliate, such Option may be exercised by the Participant's Survivors to the extent that the Option has become exercisable but has not been exercised on the date of death; and in the event rights to exercise the Option accrue periodically, to the extent of a pro rata portion through the date of death of any additional vesting rights that would have accrued on the next vesting date had the Participant not died. The proration shall be based upon the number of days accrued in the current vesting period prior to the Participant's date of death.

(b) If the Participant's Survivors wish to exercise the Option, they must take all necessary steps to exercise the Option within one year after the date of death of such Participant, notwithstanding that the decedent might have been able to exercise the Option as to some or all of the Shares on a later date if he or she had not died and had continued to be an Employee, director or Consultant or, if earlier, within the originally prescribed term of the Option.

18. *EFFECT OF TERMINATION OF SERVICE ON UNACCEPTED STOCK GRANTS AND STOCK-BASED AWARDS.*

In the event of a termination of service (whether as an Employee, director or Consultant) with the Company or an Affiliate for any reason before the Participant has accepted a Stock Grant or a Stock-Based Award and paid the purchase price, if required, such grant shall terminate.

For purposes of this Paragraph 18 and Paragraph 19 below, a Participant to whom a Stock Grant or a Stock-Based Award has been issued under the Plan who is absent from work with the Company or with an Affiliate because of temporary disability (any disability other than a Disability as defined in Paragraph 1 hereof), or who is on leave of absence for any purpose, shall not, during the period of any such absence, be deemed, by virtue of such absence alone, to have terminated such Participant's employment, director status or consultancy with the Company or with an Affiliate, except as the Administrator may otherwise expressly provide.

In addition, for purposes of this Paragraph 18 and Paragraph 19 below, any change of employment or other service within or among the Company and any Affiliates shall not be treated as a termination of employment, director status or consultancy so long as the Participant continues to be an Employee, director or Consultant of the Company or any Affiliate.

19. *EFFECT ON STOCK GRANTS AND STOCK-BASED AWARDS OF TERMINATION OF SERVICE OTHER THAN FOR CAUSE, DEATH or DISABILITY.*

Except as otherwise provided in a Participant's Agreement, in the event of a termination of service for any reason (whether as an Employee, director or Consultant), other than termination for Cause, death or Disability for which there are special rules in Paragraphs 20, 21, and 22 below, before all forfeiture provisions or Company rights of repurchase shall have lapsed, then the Company shall have the right to cancel or repurchase that number of Shares subject to a Stock Grant or Stock-Based Award as to which the Company's forfeiture or repurchase rights have not lapsed.

20. *EFFECT ON STOCK GRANTS AND STOCK-BASED AWARDS OF TERMINATION OF SERVICE FOR CAUSE.*

Except as otherwise provided in a Participant's Agreement, the following rules apply if the Participant's service (whether as an Employee, director or Consultant) with the Company or an Affiliate is terminated for Cause:

(a) All Shares subject to any Stock Grant or Stock-Based Award that remain subject to forfeiture provisions or as to which the Company shall have a repurchase right shall be immediately forfeited to the Company as of the time the Participant is notified his or her service is terminated for Cause.

(b) Cause is not limited to events which have occurred prior to a Participant's termination of service, nor is it necessary that the Administrator's finding of Cause occur prior to termination. If the Administrator determines, subsequent to a Participant's termination of service, that either prior or subsequent to the Participant's termination the Participant engaged in conduct which would constitute Cause, then all Shares subject to any Stock Grant or Stock-Based Award that remained subject to forfeiture provisions or as to which the Company had a repurchase right on the date of termination shall be immediately forfeited to the Company.

21. *EFFECT ON STOCK GRANTS AND STOCK-BASED AWARDS OF TERMINATION OF SERVICE FOR DISABILITY.*

Except as otherwise provided in a Participant's Agreement, the following rules apply if a Participant ceases to be an Employee, director or Consultant of the Company or of an Affiliate by reason of Disability: to the extent the forfeiture provisions or the Company's rights of repurchase have not lapsed on the date of Disability, they shall be exercisable; provided, however, that in the event such forfeiture provisions or rights of repurchase lapse periodically, such provisions or rights shall lapse to the extent of a pro rata portion of the Shares subject to such Stock Grant or Stock-Based Award through the date of Disability as would have lapsed had the Participant not become Disabled. The proration shall be based upon the number of days accrued prior to the date of Disability.

The Administrator shall make the determination both as to whether Disability has occurred and the date of its occurrence (unless a procedure for such determination is set forth in another agreement between the Company and such Participant, in which case such procedure shall be used for such determination). If requested, the Participant shall be examined by a physician selected or approved by the Administrator, the cost of which examination shall be paid for by the Company.

22. *EFFECT ON STOCK GRANTS AND STOCK-BASED AWARDS OF DEATH WHILE AN EMPLOYEE, DIRECTOR OR CONSULTANT.*

Except as otherwise provided in a Participant's Agreement, the following rules apply in the event of the death of a Participant while the Participant is an Employee, director or Consultant of the Company or of an Affiliate: to the extent the forfeiture provisions or the Company's rights of repurchase have not lapsed on the date of death, they shall be exercisable; provided, however, that in the event such forfeiture provisions or rights of repurchase lapse periodically, such provisions or rights shall lapse to the extent of a pro rata portion of the Shares subject to such Stock Grant or Stock-Based Award through the date of death as would have lapsed had the Participant not died. The proration shall be based upon the number of days accrued prior to the Participant's date of death.

23. *PURCHASE FOR INVESTMENT.*

Unless the offering and sale of the Shares shall have been effectively registered under the Securities Act, the Company shall be under no obligation to issue Shares under the Plan unless and until the following conditions have been fulfilled:

(a) The person who receives a Stock Right shall warrant to the Company, prior to the receipt of Shares, that such person is acquiring such Shares for his or her own account, for investment, and not with a view to, or for sale in connection with, the distribution of any such Shares, in which event the person acquiring such Shares shall be bound by the provisions of the following legend (or a legend in substantially similar form) which shall be endorsed upon the certificate evidencing the Shares issued pursuant to such exercise or such grant of a Stock Right:

> "The shares represented by this certificate have been taken for investment and they may not be sold or otherwise transferred by any person, including a pledgee, unless (1) either (a) a Registration Statement with respect to such shares shall be effective under the Securities Act of 1933, as amended, or (b) the Company shall have received an opinion of counsel satisfactory to it that an exemption from registration under such Act is then available, and (2) there shall have been compliance with all applicable state securities laws."

(b) At the discretion of the Administrator, the Company shall have received an opinion of its counsel that the Shares may be issued in compliance with the Securities Act without registration thereunder.

24. *DISSOLUTION OR LIQUIDATION OF THE COMPANY.*

Upon the dissolution or liquidation of the Company, all Options granted under this Plan which as of such date shall not have been exercised and all Stock Grants and Stock-Based Awards which have not been accepted, to the extent required under the applicable Agreement, will terminate and become null and void; provided, however, that if the rights of a Participant or a Participant's Survivors have not otherwise terminated and expired, the Participant or the Participant's Survivors will have the right immediately prior to such dissolution or liquidation to exercise or accept any Stock Right to the extent that the Stock Right is exercisable or subject to acceptance as of the date immediately prior to such dissolution or liquidation. Upon the dissolution or liquidation of the Company, any outstanding Stock-Based Awards shall immediately terminate unless otherwise determined by the Administrator or specifically provided in the applicable Agreement.

25. *ADJUSTMENTS.*

Upon the occurrence of any of the following events, a Participant's rights with respect to any Stock Right granted to him or her hereunder shall be adjusted as hereinafter provided, unless otherwise specifically provided in a Participant's Agreement.

(a) *Stock Dividends and Stock Splits*. If (i) the shares of Common Stock shall be subdivided or combined into a greater or smaller number of shares or if the Company shall issue any shares of Common Stock as a stock dividend on its outstanding Common Stock, or (ii) additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such shares of Common Stock, each Stock Right and the number of shares of Common Stock deliverable thereunder shall be appropriately increased or decreased proportionately, and appropriate adjustments shall be made including, in the exercise, base or purchase price per share and in the Performance Goals applicable to outstanding Performance-Based Awards to reflect such events. The number of Shares subject to the limitations in Paragraph 3(a) and 4(c) shall also be proportionately adjusted upon the occurrence of such events.

(b) *Corporate Transactions*. If the Company is to be consolidated with or acquired by another entity in a Corporate Transaction, the Administrator or the board of directors of any entity assuming the obligations of the Company hereunder (the "Successor Board"), shall, as to outstanding Options, either: (i) make appropriate provision for the continuation of such Options by substituting on an equitable basis for the Shares then subject to such Options either the consideration payable with respect to the outstanding shares of Common Stock in connection with the Corporate Transaction or securities of any successor or acquiring entity; or (ii) upon written notice to the Participants, provide that such Options must be exercised (either (A) to the extent then exercisable or (B) at the discretion of the Administrator, any such Options being made partially or fully exercisable for purposes of this Subparagraph), within a specified number of days of the date of such notice, at the end of which period such Options which have not been exercised shall terminate; or (iii) terminate such Options in exchange for payment of an amount equal to the consideration payable upon consummation of such Corporate Transaction to a holder of the number of shares of Common Stock into which such Option would have been exercisable (either (A) to the extent then exercisable or, (B) at the discretion of the Administrator, any such Options being made partially or fully exercisable for purposes of this Subparagraph) *less the aggregate* exercise price thereof. For purposes of determining the payments to be made pursuant to Subclause (iii) above, in the case of a Corporate Transaction the consideration for which, in whole or in part, is other than cash, the consideration other than cash shall be valued at the fair value thereof as determined in good faith by the Board of Directors.

With respect to outstanding Stock Grants, the Administrator or the Successor Board, shall make appropriate provision for the continuation of such Stock Grants on the same terms and conditions by substituting on an equitable basis for the Shares then subject to such Stock Grants either the consideration payable with respect to the outstanding Shares of Common Stock in connection with the Corporate Transaction or securities of any successor or acquiring entity. In lieu of the foregoing, in connection with any Corporate Transaction, the Administrator may provide that, upon consummation of the Corporate Transaction, each outstanding Stock Grant shall be terminated in exchange for payment of an amount equal to the consideration payable upon consummation of such Corporate Transaction to a holder of the number of shares of Common Stock comprising such Stock Grant (to the extent such Stock Grant is no longer subject to any forfeiture or repurchase rights then in effect or, at the discretion of the Administrator, all forfeiture and repurchase rights being waived upon such Corporate Transaction).

In taking any of the actions permitted under this Paragraph 25(b), the Administrator shall not be obligated by the Plan to treat all Stock Rights, all Stock Rights held by a Participant, or all Stock Rights of the same type, identically.

A Stock Right may be subject to additional acceleration of vesting and exercisability upon or after a change of control as may be provided in the Agreement for such Stock Right, in any other written agreement between the Company or any Affiliate and the Participant or in any director compensation policy of the Company.

(c) *Recapitalization or Reorganization.* In the event of a recapitalization or reorganization of the Company other than a Corporate Transaction pursuant to which securities of the Company or of another corporation are issued with respect to the outstanding shares of Common Stock, a Participant upon exercising an Option or accepting a Stock Grant after the recapitalization or reorganization shall be entitled to receive for the price paid upon such exercise or acceptance if any, the number of replacement securities which would have been received if such Option had been exercised or Stock Grant accepted prior to such recapitalization or reorganization.

(d) *Adjustments to Stock-Based Awards.* Upon the happening of any of the events described in Subparagraphs (a), (b) or (c) above, any outstanding Stock-Based Award shall be appropriately adjusted to reflect the events described in such Subparagraphs. The Administrator or the Successor

Board shall determine the specific adjustments to be made under this Paragraph 25, including, but not limited to the effect of any, Corporate Transaction and, subject to Paragraph 4, its determination shall be conclusive.

(e) *Modification of Options*. Notwithstanding the foregoing, any adjustments made pursuant to Subparagraph (a), (b) or (c) above with respect to Options shall be made only after the Administrator determines whether such adjustments would (i) constitute a "modification" of any ISOs (as that term is defined in Section 424(h) of the Code) or (ii) cause any adverse tax consequences for the holders of Options, including, but not limited to, pursuant to Section 409A of the Code. If the Administrator determines that such adjustments made with respect to Options would constitute a modification or other adverse tax consequence, it may in its discretion refrain from making such adjustments, unless the holder of an Option specifically agrees in writing that such adjustment be made and such writing indicates that the holder has full knowledge of the consequences of such "modification" on his or her income tax treatment with respect to the Option. This paragraph shall not apply to the acceleration of the vesting of any ISO that would cause any portion of the ISO to violate the annual vesting limitation contained in Section 422(d) of the Code, as described in Paragraph 6(b)(iv).

26. *ISSUANCES OF SECURITIES.*

Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares subject to Stock Rights. Except as expressly provided herein, no adjustments shall be made for dividends paid in cash or in property (including without limitation, securities) of the Company prior to any issuance of Shares pursuant to a Stock Right.

27. *FRACTIONAL SHARES.*

No fractional shares shall be issued under the Plan and the person exercising a Stock Right shall receive from the Company cash in lieu of such fractional shares equal to the Fair Market Value thereof.

28. *WITHHOLDING.*

In the event that any federal, state, or local income taxes, employment taxes, Federal Insurance Contributions Act withholdings or other amounts are required by applicable law or governmental regulation to be withheld from the Participant's salary, wages or other remuneration in connection with the issuance of a Stock Right or Shares under the Plan or for any other reason required by law, the Company may withhold from the Participant's compensation, if any, or may require that the Participant advance in cash to the Company, or to any Affiliate of the Company which employs or employed the Participant, the statutory minimum amount of such withholdings unless a different withholding arrangement, including the use of shares of the Company's Common Stock or a promissory note, is authorized by the Administrator (and permitted by law). For purposes hereof, the fair market value of the shares withheld for purposes of payroll withholding shall be determined in the manner set forth under the definition of Fair Market Value provided in Paragraph 1 above, as of the most recent practicable date prior to the date of exercise. If the Fair Market Value of the shares withheld is less than the amount of payroll withholdings required, the Participant may be required to advance the difference in cash to the Company or the Affiliate employer.

29. *NOTICE TO COMPANY OF DISQUALIFYING DISPOSITION.*

Each Employee who receives an ISO must agree to notify the Company in writing immediately after the Employee makes a Disqualifying Disposition of any Shares acquired pursuant to the exercise of an ISO. A Disqualifying Disposition is defined in Section 424(c) of the Code and includes any

disposition (including any sale or gift) of such Shares before the later of (a) two years after the date the Employee was granted the ISO, or (b) one year after the date the Employee acquired Shares by exercising the ISO, except as otherwise provided in Section 424(c) of the Code. If the Employee has died before such Shares are sold, these holding period requirements do not apply and no Disqualifying Disposition can occur thereafter.

30. *TERMINATION OF THE PLAN.*

The Plan will terminate on August 29, 2029, the date which is ten years from the *earlier* of the date of its adoption by the Board of Directors and the date of its approval by the shareholders of the Company. The Plan may be terminated at an earlier date by vote of the shareholders or the Board of Directors of the Company; provided, however, that any such earlier termination shall not affect any Agreements executed prior to the effective date of such termination. Termination of the Plan shall not affect any Stock Rights theretofore granted.

31. *AMENDMENT OF THE PLAN AND AGREEMENTS.*

The Plan may be amended by the shareholders of the Company. The Plan may also be amended by the Administrator; provided that any amendment approved by the Administrator which the Administrator determines is of a scope that requires shareholder approval shall be subject to obtaining such shareholder approval including, without limitation, to the extent necessary to qualify any or all outstanding Stock Rights granted under the Plan or Stock Rights to be granted under the Plan for favorable federal income tax treatment as may be afforded ISOs under Section 422 of the Code and to the extent necessary to qualify the Shares issuable under the Plan for listing on any national securities exchange or quotation in any national automated quotation system of securities dealers. Other than as set forth in Paragraph 25 of the Plan, at any time when the exercise price of such Option is above the fair market value of a share, the Administrator may not without shareholder approval reduce the exercise price of an Option or cancel any outstanding Option of Common Stock in exchange for (i) a replacement option having a lower exercise price, (ii) a Stock Grant, (iii) any other Stock-Based Award or (iv) for cash. In addition the Administrator shall not take any other action that is considered a direct or indirect "repricing" for purposes of the shareholder approval rules of the applicable securities exchange or inter-dealer quotation system on which the Shares are listed, including any other action that is treated as a repricing under generally accepted accounting principles. Any modification or amendment of the Plan shall not, without the consent of a Participant, adversely affect his or her rights under a Stock Right previously granted to him or her, unless such amendment is required by applicable law or necessary to preserve the economic value of such Stock Right. With the consent of the Participant affected, the Administrator may amend outstanding Agreements in a manner which may be adverse to the Participant but which is not inconsistent with the Plan. In the discretion of the Administrator, outstanding Agreements may be amended by the Administrator in a manner which is not adverse to the Participant. Nothing in this Paragraph 31 shall limit the Administrator's authority to take any action permitted pursuant to Paragraph 25.

32. *EMPLOYMENT OR OTHER RELATIONSHIP.*

Nothing in this Plan or any Agreement shall be deemed to prevent the Company or an Affiliate from terminating the employment, consultancy or director status of a Participant, nor to prevent a Participant from terminating his or her own employment, consultancy or director status or to give any Participant a right to be retained in employment or other service by the Company or any Affiliate for any period of time.

33. *SECTION 409A.*

If a Participant is a "specified employee" as defined in Section 409A of the Code (and as applied according to procedures of the Company and its Affiliates) as of his separation from service, to the extent any payment under this Plan or pursuant to the grant of a Stock-Based Award constitutes

deferred compensation (after taking into account any applicable exemptions from Section 409A of the Code), and to the extent required by Section 409A of the Code, no payments due under this Plan or pursuant to a Stock-Based Award may be made until the earlier of: (i) the first day of the seventh month following the Participant's separation from service, or (ii) the Participant's date of death; provided, however, that any payments delayed during this six-month period shall be paid in the aggregate in a lump sum, without interest, on the first day of the seventh month following the Participant's separation from service.

The Administrator shall administer the Plan with a view toward ensuring that Stock Rights under the Plan that are subject to Section 409A of the Code comply with the requirements thereof and that Options under the Plan be exempt from the requirements of Section 409A of the Code, but neither the Administrator nor any member of the Board of Directors, nor the Company nor any of its Affiliates, nor any other person acting hereunder on behalf of the Company, the Administrator or the Board of Directors shall be liable to a Participant or any Survivor by reason of the acceleration of any income, or the imposition of any additional tax or penalty, with respect to a Stock Right, whether by reason of a failure to satisfy the requirements of Section 409A of the Code or otherwise.

34. *INDEMNITY.*

Neither the Board of Directors nor the Administrator, nor any members of either, nor any employees of the Company or any parent, subsidiary, or other Affiliate, shall be liable for any act, omission, interpretation, construction or determination made in good faith in connection with their responsibilities with respect to this Plan, and the Company hereby agrees to indemnify the members of the Board or Directors, the members of the Committee, and the employees of the Company and its parent or subsidiaries in respect of any claim, loss, damage, or expense (including reasonable counsel fees) arising from any such act, omission, interpretation, construction or determination to the full extent permitted by law.

35. *CLAWBACK.*

Notwithstanding anything to the contrary contained in this Plan, the Company may recover from a Participant any compensation received from any Stock Right (whether or not settled) or cause a Participant to forfeit any Stock Right (whether or not vested) in the event that the Company's Clawback Policy as then in effect is triggered.

36. *GOVERNING LAW.*

This Plan shall be construed and enforced in accordance with the law of the State of Delaware.

**Annex E**

*Strictly Confidential*

July 24, 2019

Gemphire Therapeutics Inc.
Attention: Steve Gullans, PhD
Chief Executive Officer
17199 N. Laurel Park Dr.
Suite 401
Livonia, MI 48152

Members of the Board of Directors:

LADENBURG THALMANN & CO. INC.
277 Park Avenue, 26th floor
New York, NY 10172
Phone 212.409.2000 • Fax 212.409.2169

MEMBER NYSE, NYSE MKT, FINRA, SIPC

We have been advised that Gemphire Therapeutics Inc., a Delaware corporation ("Gemphire" or the "Parent"), proposes to enter into an Agreement and Plan of Merger and Reorganization, expected to be dated as of July 24, 2019 (the "Merger Agreement"), by and among Gemphire, GR Merger Sub Inc., a Delaware corporation and a wholly owned subsidiary of Gemphire ("Merger Sub") and NeuroBo Pharmaceuticals, Inc., a Delaware corporation ("NeuroBo" or the "Company"). Pursuant to the Merger Agreement, upon the Closing of the Merger, Merger Sub will be merged with and into NeuroBo, with NeuroBo continuing as the surviving corporation (the "Merger"). We further understand that as a result of the Merger, NeuroBo will become a wholly owned subsidiary of Gemphire and each share of common stock of NeuroBo outstanding immediately prior to the Merger (the "Company Common Stock") (excluding (i) shares held by NeuroBo, Merger Sub or any Subsidiary of NeuroBo and (ii) Dissenting Shares after giving effect to the Pre-Closing Financing, the Preferred Stock Conversion and the Convertible Note Conversion) will be converted into the right to receive a number of shares of Gemphire common stock, $0.01 par value per share (the "Parent Common Stock"), equal to the Exchange Ratio of 269,696.1030, without giving effect to the reverse split (the "Reverse Split") or the stock split (the "Stock Split"), such that, immediately following the consummation of the Merger, the holders of Company Common Stock (including the unexercised options to purchase Company Common Stock) immediately prior to the Merger shall hold approximately 95.9% of the fully diluted shares of Parent Common Stock outstanding (excluding Gemphire options that were out of the money immediately prior to the Merger) immediately following the Merger and the holders of Parent Common Stock (the "Parent Stockholders") immediately prior to the Merger shall hold approximately 4.1% of the fully diluted shares of Parent Common Stock outstanding (excluding Gemphire options that were out of the money immediately prior to the Merger) immediately following the Merger, in each case, taking into account the Pre-Closing Financing for gross proceeds up to and including $24.2 million. We also understand that the Parent Stockholders as of immediately prior to the Effective Time will receive the right to receive contingent cash payments pursuant to the Contingent Value Rights Agreement, which would be executed in connection with the consummation of the Merger (the "CVR Agreement"). The exchange ratio (the "Exchange Ratio") used to determine the number of shares of Parent Common Stock to be issued to the holders of Company Common Stock and the number of Parent Options to be substituted for the Company

Options to be assumed by Parent and the right of the Parent Stockholders as of immediately prior to the Effective Time to receive contingent cash payments pursuant to the CVR Agreement together are herein referred to as the consideration (the "Consideration"). The terms and conditions of the Merger are more fully set forth in the Merger Agreement and the CVR Agreement. Capitalized terms used but not defined herein shall have the meanings ascribed to such terms in the Merger Agreement or the CVR Agreement, as the case may be.

In your capacity as members of the Board of Directors (the "Board of Directors") of Gemphire, you have requested our opinion (our "Opinion"), as to the fairness, from a financial point of view and as of the date hereof, of the Consideration to the Parent Stockholders.

In connection with our Opinion, we took into account an assessment of general economic, market and financial conditions as well as our experience in connection with similar transactions and securities valuations generally and, among other things:

- Reviewed a draft of the Merger Agreement dated July 24, 2019, and a draft of the CVR Agreement which would be executed in connection with the consummation of the Merger. Both the Merger Agreement and the CVR Agreement were the most recent drafts made available to us prior to delivery of our Opinion;
- Reviewed and analyzed certain publicly available financial and other information for each of Gemphire and NeuroBo, respectively, including equity research on comparable companies and on Gemphire, and certain other relevant financial and operating data furnished to us by the management of each of Gemphire and NeuroBo, respectively;
- Reviewed and analyzed certain relevant historical financial and operating data concerning NeuroBo furnished to us by the management of NeuroBo;
- Discussed with certain members of the management of Gemphire the historical and current business operations, financial condition and prospects of Gemphire and NeuroBo;
- Reviewed and analyzed certain operating results of NeuroBo as compared to operating results and the reported price and trading histories of certain publicly traded companies that we deemed relevant;
- Reviewed and analyzed certain financial terms of the Merger Agreement and the CVR Agreement as compared to the publicly available financial terms of certain selected business combinations that we deemed relevant;
- Reviewed and analyzed certain financial terms of completed initial public offerings for certain companies that we deemed relevant;
- Reviewed certain pro forma financial effects of the Merger;
- Reviewed and analyzed certain internal financial analyses, projections as to cost and expenses, reports, preliminary internal market opportunity assumptions and other information concerning NeuroBo prepared by the management of NeuroBo as well as projections for NeuroBo prepared by the management of Gemphire as adjusted and provided to Ladenburg Thalmann by management of Gemphire and utilized per instruction of Gemphire; and
- Reviewed and analyzed such other information and such other factors, and conducted such other financial studies, analyses and investigations, as we deemed relevant for the purposes of our Opinion.

In conducting our review and arriving at our Opinion, we have, with your consent, assumed and relied, without independent verification or investigation, upon the accuracy and completeness of all financial and other information provided to or discussed with us by Gemphire and NeuroBo,

respectively (for their respective employees, representatives or affiliates), or which is publicly available or was otherwise reviewed by us. We have not undertaken any responsibility for the accuracy, completeness or reasonableness of, or independent verification of, such information. We have relied upon, without independent verifications, the assessment of Gemphire management and NeuroBo management as to the viability of, and risks associated with, the current and future products and services of NeuroBo (including without limitation, the development, testing and marketing of such products and services, the receipt of all necessary governmental and other regulatory approvals for the development, testing and marketing thereof, and the life and enforceability of all relevant patents and other intellectual and other property rights associated with such products and services). In addition, we have not conducted, nor have we assumed any obligation to conduct, any physical inspection of the properties or facilities of Gemphire or NeuroBo. Furthermore, we have assumed, with your consent, that there will be no further adjustments to the Consideration between the date hereof and the date the final Consideration is determined. We have, with your consent, relied upon the assumption that all information provided to us by Gemphire and NeuroBo is accurate and complete in all material respects. We expressly disclaim any undertaking or obligation to advise any person of any change in any fact or matter affecting our Opinion of which we become aware after the date hereof. We assumed there were no material changes in the assets, liabilities, financial condition, results of operations, business or prospects of Gemphire or NeuroBo since the date of the last financial statements made available to us. We have not obtained any independent evaluations, valuations or appraisals of the assets or liabilities of Gemphire or NeuroBo, nor have we been furnished with such materials. In addition, we have not evaluated the solvency or fair value of Gemphire or NeuroBo under any state or federal laws relating to bankruptcy, insolvency or similar matters. We have been informed that the Parent Cash Amount is expected to be negative $3.0 million at Closing. Our Opinion does not address any legal, tax or accounting matters related to the Merger, as to which we have assumed that Gemphire and the Board of Directors have received such advice from legal, tax and accounting advisors as each has determined appropriate. Our Opinion addresses only the fairness of the Consideration, from a financial point of view, to the Parent Stockholders. We express no view as to any other aspect or implication of the Merger or any other agreement or arrangement entered into in connection with the Merger. Our Opinion is necessarily based upon economic and market conditions and other circumstances as they exist and can be evaluated by us on the date hereof. It should be understood that although subsequent developments may affect our Opinion, we do not have any obligation to update, revise or reaffirm our Opinion and we expressly disclaim any responsibility to do so.

Ladenburg Thalmann & Co. Inc. ("Ladenburg") did not assign any value to the right of the Parent Stockholders to receive contingent cash payments per the CVR Agreement, given our determination that any projections underlying the analysis would be too speculative to use in our analysis of the value of such rights as it relates to the fairness of the Consideration.

We have not considered any potential legislative or regulatory changes currently being considered or recently enacted by the United States or any foreign government, or any domestic or foreign regulatory body, or any changes in accounting methods or generally accepted accounting principles that may be adopted by the Securities and Exchange Commission, the Financial Accounting Standards Board, or any similar foreign regulatory body or board.

For purposes of rendering our Opinion we have assumed in all respects material to our analysis, that the representations and warranties of each party contained in the Merger Agreement and CVR Agreement are true and correct, that each party will perform all of the standards of the covenants and agreements required to be performed by it under the Merger Agreement and CVR Agreement and that all conditions to the consummation of the Merger will be satisfied without waiver thereof. We have assumed that the final form of the Merger Agreement and the CVR Agreement will be substantially similar to the last draft reviewed by us. We have also assumed that all governmental, regulatory and other consents and approvals contemplated by the Merger Agreement and the CVR Agreement will be

obtained and that in the course of obtaining any of those consents no restrictions will be imposed or waivers made that would have an adverse effect on the contemplated benefits of the Merger. We have assumed that the Merger will be consummated in a manner that complies with the applicable provisions of the Securities Act of 1933, as amended, the Securities Exchange Act of 1934, as amended, and all other applicable federal and state statutes, rules and regulations. You have informed us, and we have assumed, that the Merger is intended to constitute a reorganization within the meaning of Section 368(a) of the Code and the Treasury Regulations promulgated thereunder.

It is understood that this letter is intended for the benefit and use of the Transaction Committee of the Board of Directors and the Board of Directors in its consideration of the financial terms of the Merger and, except as set forth in the engagement letter with Gemphire, dated as of November 28, 2018 (the "Engagement Letter"), may not be used for any other purpose or reproduced, disseminated, quoted or referred to at any time, in any manner or for any purpose without our prior written consent, unless pursuant to applicable law or regulations or required by other regulatory authority by the order or ruling of a court or administrative body, except that this opinion may be included in its entirety in any filing related to the Merger to be filed with the Securities and Exchange Commission and the proxy statement to be mailed to the Parent Stockholders. This letter does not constitute a recommendation to the Board of Directors of whether or not to approve the Merger or to any Parent Stockholders or any other person as to how to vote with respect to the Merger or to take any other action in connection with the Merger or otherwise. Our Opinion does not address Gemphire's underlying business decision to proceed with the Merger or the relative merits of the Merger compared to other alternatives available to Gemphire. We express no opinion as to the prices or ranges of prices at which shares or the securities of any person, including Gemphire, will trade at any time, including following the announcement or consummation of the Merger. We have not been requested to opine as to, and our Opinion does not in any manner address, the amount or nature of compensation to any of the officers, directors or employees of any party to the Merger, or any class of such persons, relative to the compensation to be paid to the Parent Stockholders in connection with the Merger or with respect to the fairness of any such compensation.

Ladenburg is a full service investment bank providing investment banking, brokerage, equity research, institutional sales and trading, and asset management services. As part of our investment banking services, we are regularly engaged in the valuation of businesses and their securities in connection with mergers, negotiated underwritings, secondary distributions of listed and unlisted securities, private placements and valuations for corporate and other purposes. We have acted as Gemphire's financial advisor in connection with the Merger and will receive a fee for our services pursuant to the terms of our Engagement Letter, a significant portion of which is contingent upon consummation of the Merger. In addition, Gemphire has agreed to reimburse our expenses and indemnify us for certain liabilities that may arise out of our engagement. We will also receive an additional fee for rendering our Opinion set forth below pursuant to the Engagement Letter. In the three years preceding the date hereof, Ladenburg has not had a relationship with Gemphire and has not received any fees from Gemphire, aside from the $100,000 up-front retainer which was paid to Ladenburg in connection with its engagement. In the three years preceding the date hereof, Ladenburg has not had a relationship with NeuroBo and has not received any fees from NeuroBo. Ladenburg and its affiliates may in the future seek to provide investment banking or financial advisory services to Gemphire and NeuroBo and/or certain of their respective affiliates and expect to receive fees for the rendering of these services.

In the ordinary course of business, Ladenburg or certain of our affiliates, as well as investment funds in which we or our affiliates may have financial interests, may acquire, hold or sell long or short positions, or trade or otherwise effect transactions in debt, equity, and other securities and financial instruments (including bank loans and other obligations) of, or investments in, Gemphire, NeuroBo or any other party that may be involved in the Merger and/or their respective affiliates.

Consistent with applicable legal and regulatory requirements, Ladenburg has adopted policies and procedures to establish and maintain the independence of our research department and personnel. As a result, our research analysts may hold views, make statements or investment recommendations and/or publish research reports with respect to Gemphire and the proposed Merger that may differ from the views of Ladenburg's investment banking personnel.

The Opinion set forth below was reviewed and approved by a fairness opinion committee of Ladenburg.

Based upon and subject to the foregoing, including the various assumptions and limitations set forth herein and such other factors that we deem relevant, it is our opinion that, as of the date hereof, the Consideration is fair, from a financial point of view, to the Parent Stockholders.

Very truly yours,

/s/ Ladenburg Thalmann & Co. Inc.

***Ladenburg Thalmann & Co. Inc.***

**ANNEX F**

**SECTION 262 OF THE GENERAL CORPORATION LAW OF THE STATE OF DELAWARE**

§ 262. Appraisal rights.

(a) Any stockholder of a corporation of this State who holds shares of stock on the date of the making of a demand pursuant to subsection (d) of this section with respect to such shares, who continuously holds such shares through the effective date of the merger or consolidation, who has otherwise complied with subsection (d) of this section and who has neither voted in favor of the merger or consolidation nor consented thereto in writing pursuant to § 228 of this title shall be entitled to an appraisal by the Court of Chancery of the fair value of the stockholder's shares of stock under the circumstances described in subsections (b) and (c) of this section. As used in this section, the word "stockholder" means a holder of record of stock in a corporation; the words "stock" and "share" mean and include what is ordinarily meant by those words; and the words "depository receipt" mean a receipt or other instrument issued by a depository representing an interest in 1 or more shares, or fractions thereof, solely of stock of a corporation, which stock is deposited with the depository.

(b) Appraisal rights shall be available for the shares of any class or series of stock of a constituent corporation in a merger or consolidation to be effected pursuant to § 251 (other than a merger effected pursuant to § 251(g) of this title), § 252, § 254, § 255, § 256, § 257, § 258, § 263 or § 264 of this title:

1. Provided, however, that, except as expressly provided in § 363(b) of this title, no appraisal rights under this section shall be available for the shares of any class or series of stock, which stock, or depository receipts in respect thereof, at the record date fixed to determine the stockholders entitled to receive notice of the meeting of stockholders to act upon the agreement of merger or consolidation (or, in the case of a merger pursuant to § 251(h), as of immediately prior to the execution of the agreement of merger), were either: (i) listed on a national securities exchange or (ii) held of record by more than 2,000 holders; and further provided that no appraisal rights shall be available for any shares of stock of the constituent corporation surviving a merger if the merger did not require for its approval the vote of the stockholders of the surviving corporation as provided in § 251(f) of this title.

2. Notwithstanding paragraph (b)(1) of this section, appraisal rights under this section shall be available for the shares of any class or series of stock of a constituent corporation if the holders thereof are required by the terms of an agreement of merger or consolidation pursuant to §§ 251, 252, 254, 255, 256, 257, 258, 263 and 264 of this title to accept for such stock anything except:

   a. Shares of stock of the corporation surviving or resulting from such merger or consolidation, or depository receipts in respect thereof;

   b. Shares of stock of any other corporation, or depository receipts in respect thereof, which shares of stock (or depository receipts in respect thereof) or depository receipts at the effective date of the merger or consolidation will be either listed on a national securities exchange or held of record by more than 2,000 holders;

   c. Cash in lieu of fractional shares or fractional depository receipts described in the foregoing paragraphs (b)(2)a. and b. of this section; or

   d. Any combination of the shares of stock, depository receipts and cash in lieu of fractional shares or fractional depository receipts described in the foregoing paragraphs (b)(2)a., b. and c. of this section.

3. In the event all of the stock of a subsidiary Delaware corporation party to a merger effected under § 253 or § 267 of this title is not owned by the parent immediately prior to the merger, appraisal rights shall be available for the shares of the subsidiary Delaware corporation.

4. In the event of an amendment to a corporation's certificate of incorporation contemplated by § 363(a) of this title, appraisal rights shall be available as contemplated by § 363(b) of this title, and the procedures of this section, including those set forth in subsections (d) and (e) of this section, shall apply as nearly as practicable, with the word "amendment" substituted for the words "merger or consolidation," and the word "corporation" substituted for the words "constituent corporation" and/or "surviving or resulting corporation."

(c) Any corporation may provide in its certificate of incorporation that appraisal rights under this section shall be available for the shares of any class or series of its stock as a result of an amendment to its certificate of incorporation, any merger or consolidation in which the corporation is a constituent corporation or the sale of all or substantially all of the assets of the corporation. If the certificate of incorporation contains such a provision, the provisions of this section, including those set forth in subsections (d), (e), and (g) of this section, shall apply as nearly as is practicable.

(d) Appraisal rights shall be perfected as follows:

1. If a proposed merger or consolidation for which appraisal rights are provided under this section is to be submitted for approval at a meeting of stockholders, the corporation, not less than 20 days prior to the meeting, shall notify each of its stockholders who was such on the record date for notice of such meeting (or such members who received notice in accordance with § 255(c) of this title) with respect to shares for which appraisal rights are available pursuant to subsection (b) or (c) of this section that appraisal rights are available for any or all of the shares of the constituent corporations, and shall include in such notice a copy of this section and, if 1 of the constituent corporations is a nonstock corporation, a copy of § 114 of this title. Each stockholder electing to demand the appraisal of such stockholder's shares shall deliver to the corporation, before the taking of the vote on the merger or consolidation, a written demand for appraisal of such stockholder's shares; provided that a demand may be delivered to the corporation by electronic transmission if directed to an information processing system (if any) expressly designated for that purpose in such notice. Such demand will be sufficient if it reasonably informs the corporation of the identity of the stockholder and that the stockholder intends thereby to demand the appraisal of such stockholder's shares. A proxy or vote against the merger or consolidation shall not constitute such a demand. A stockholder electing to take such action must do so by a separate written demand as herein provided. Within 10 days after the effective date of such merger or consolidation, the surviving or resulting corporation shall notify each stockholder of each constituent corporation who has complied with this subsection and has not voted in favor of or consented to the merger or consolidation of the date that the merger or consolidation has become effective; or

2. If the merger or consolidation was approved pursuant to § 228, § 251(h), § 253, or § 267 of this title, then either a constituent corporation before the effective date of the merger or consolidation or the surviving or resulting corporation within 10 days thereafter shall notify each of the holders of any class or series of stock of such constituent corporation who are entitled to appraisal rights of the approval of the merger or consolidation and that appraisal rights are available for any or all shares of such class or series of stock of such constituent corporation, and shall include in such notice a copy of this section and, if 1 of the constituent corporations is a nonstock corporation, a copy of § 114 of this title. Such notice may, and, if given on or after the effective date of the merger or consolidation, shall, also notify such stockholders of the effective date of the merger or consolidation. Any stockholder entitled to appraisal rights may, within 20 days after the date of giving such notice or, in the case of a

merger approved pursuant to § 251(h) of this title, within the later of the consummation of the offer contemplated by § 251(h) of this title and 20 days after the date of giving such notice, demand in writing from the surviving or resulting corporation the appraisal of such holder's shares; provided that a demand may be delivered to the corporation by electronic transmission if directed to an information processing system (if any) expressly designated for that purpose in such notice. Such demand will be sufficient if it reasonably informs the corporation of the identity of the stockholder and that the stockholder intends thereby to demand the appraisal of such holder's shares. If such notice did not notify stockholders of the effective date of the merger or consolidation, either (i) each such constituent corporation shall send a second notice before the effective date of the merger or consolidation notifying each of the holders of any class or series of stock of such constituent corporation that are entitled to appraisal rights of the effective date of the merger or consolidation or (ii) the surviving or resulting corporation shall send such a second notice to all such holders on or within 10 days after such effective date; provided, however, that if such second notice is sent more than 20 days following the sending of the first notice or, in the case of a merger approved pursuant to § 251(h) of this title, later than the later of the consummation of the offer contemplated by § 251(h) of this title and 20 days following the sending of the first notice, such second notice need only be sent to each stockholder who is entitled to appraisal rights and who has demanded appraisal of such holder's shares in accordance with this subsection. An affidavit of the secretary or assistant secretary or of the transfer agent of the corporation that is required to give either notice that such notice has been given shall, in the absence of fraud, be prima facie evidence of the facts stated therein. For purposes of determining the stockholders entitled to receive either notice, each constituent corporation may fix, in advance, a record date that shall be not more than 10 days prior to the date the notice is given, provided, that if the notice is given on or after the effective date of the merger or consolidation, the record date shall be such effective date. If no record date is fixed and the notice is given prior to the effective date, the record date shall be the close of business on the day next preceding the day on which the notice is given.

(e) Within 120 days after the effective date of the merger or consolidation, the surviving or resulting corporation or any stockholder who has complied with subsections (a) and (d) of this section hereof and who is otherwise entitled to appraisal rights, may commence an appraisal proceeding by filing a petition in the Court of Chancery demanding a determination of the value of the stock of all such stockholders. Notwithstanding the foregoing, at any time within 60 days after the effective date of the merger or consolidation, any stockholder who has not commenced an appraisal proceeding or joined that proceeding as a named party shall have the right to withdraw such stockholder's demand for appraisal and to accept the terms offered upon the merger or consolidation. Within 120 days after the effective date of the merger or consolidation, any stockholder who has complied with the requirements of subsections (a) and (d) of this section hereof, upon request given in writing (or by electronic transmission directed to an information processing system (if any) expressly designated for that purpose in the notice of appraisal), shall be entitled to receive from the corporation surviving the merger or resulting from the consolidation a statement setting forth the aggregate number of shares not voted in favor of the merger or consolidation (or, in the case of a merger approved pursuant to § 251(h) of this title, the aggregate number of shares (other than any excluded stock (as defined in § 251(h)(6)d. of this title)) that were the subject of, and were not tendered into, and accepted for purchase or exchange in, the offer referred to in § 251(h)(2)), and, in either case, with respect to which demands for appraisal have been received and the aggregate number of holders of such shares. Such statement shall be given to the stockholder within 10 days after such stockholder's request for such a statement is received by the surviving or resulting corporation or within 10 days after expiration of the period for delivery of demands for appraisal under subsection (d) of this section hereof, whichever is later. Notwithstanding subsection (a) of this section, a person who is the beneficial owner of shares of such stock held either

in a voting trust or by a nominee on behalf of such person may, in such person's own name, file a petition or request from the corporation the statement described in this subsection.

(f) Upon the filing of any such petition by a stockholder, service of a copy thereof shall be made upon the surviving or resulting corporation, which shall within 20 days after such service file in the office of the Register in Chancery in which the petition was filed a duly verified list containing the names and addresses of all stockholders who have demanded payment for their shares and with whom agreements as to the value of their shares have not been reached by the surviving or resulting corporation. If the petition shall be filed by the surviving or resulting corporation, the petition shall be accompanied by such a duly verified list. The Register in Chancery, if so ordered by the Court, shall give notice of the time and place fixed for the hearing of such petition by registered or certified mail to the surviving or resulting corporation and to the stockholders shown on the list at the addresses therein stated. Such notice shall also be given by 1 or more publications at least 1 week before the day of the hearing, in a newspaper of general circulation published in the City of Wilmington, Delaware or such publication as the Court deems advisable. The forms of the notices by mail and by publication shall be approved by the Court, and the costs thereof shall be borne by the surviving or resulting corporation.

(g) At the hearing on such petition, the Court shall determine the stockholders who have complied with this section and who have become entitled to appraisal rights. The Court may require the stockholders who have demanded an appraisal for their shares and who hold stock represented by certificates to submit their certificates of stock to the Register in Chancery for notation thereon of the pendency of the appraisal proceedings; and if any stockholder fails to comply with such direction, the Court may dismiss the proceedings as to such stockholder. If immediately before the merger or consolidation the shares of the class or series of stock of the constituent corporation as to which appraisal rights are available were listed on a national securities exchange, the Court shall dismiss the proceedings as to all holders of such shares who are otherwise entitled to appraisal rights unless (1) the total number of shares entitled to appraisal exceeds 1% of the outstanding shares of the class or series eligible for appraisal, (2) the value of the consideration provided in the merger or consolidation for such total number of shares exceeds $1 million, or (3) the merger was approved pursuant to § 253 or § 267 of this title.

(h) After the Court determines the stockholders entitled to an appraisal, the appraisal proceeding shall be conducted in accordance with the rules of the Court of Chancery, including any rules specifically governing appraisal proceedings. Through such proceeding the Court shall determine the fair value of the shares exclusive of any element of value arising from the accomplishment or expectation of the merger or consolidation, together with interest, if any, to be paid upon the amount determined to be the fair value. In determining such fair value, the Court shall take into account all relevant factors. Unless the Court in its discretion determines otherwise for good cause shown, and except as provided in this subsection, interest from the effective date of the merger through the date of payment of the judgment shall be compounded quarterly and shall accrue at 5% over the Federal Reserve discount rate (including any surcharge) as established from time to time during the period between the effective date of the merger and the date of payment of the judgment. At any time before the entry of judgment in the proceedings, the surviving corporation may pay to each stockholder entitled to appraisal an amount in cash, in which case interest shall accrue thereafter as provided herein only upon the sum of (1) the difference, if any, between the amount so paid and the fair value of the shares as determined by the Court, and (2) interest theretofore accrued, unless paid at that time. Upon application by the surviving or resulting corporation or by any stockholder entitled to participate in the appraisal proceeding, the Court may, in its discretion, proceed to trial upon the appraisal prior to the final determination of the stockholders entitled to an appraisal. Any stockholder whose name appears on the list filed by the surviving or resulting corporation pursuant to subsection (f) of this section and who has submitted such stockholder's certificates of stock to the Register in Chancery, if

such is required, may participate fully in all proceedings until it is finally determined that such stockholder is not entitled to appraisal rights under this section.

(i) The Court shall direct the payment of the fair value of the shares, together with interest, if any, by the surviving or resulting corporation to the stockholders entitled thereto. Payment shall be so made to each such stockholder, in the case of holders of uncertificated stock forthwith, and the case of holders of shares represented by certificates upon the surrender to the corporation of the certificates representing such stock. The Court's decree may be enforced as other decrees in the Court of Chancery may be enforced, whether such surviving or resulting corporation be a corporation of this State or of any state.

(j) The costs of the proceeding may be determined by the Court and taxed upon the parties as the Court deems equitable in the circumstances. Upon application of a stockholder, the Court may order all or a portion of the expenses incurred by any stockholder in connection with the appraisal proceeding, including, without limitation, reasonable attorney's fees and the fees and expenses of experts, to be charged pro rata against the value of all the shares entitled to an appraisal.

(k) From and after the effective date of the merger or consolidation, no stockholder who has demanded appraisal rights as provided in subsection (d) of this section shall be entitled to vote such stock for any purpose or to receive payment of dividends or other distributions on the stock (except dividends or other distributions payable to stockholders of record at a date which is prior to the effective date of the merger or consolidation); provided, however, that if no petition for an appraisal shall be filed within the time provided in subsection (e) of this section, or if such stockholder shall deliver to the surviving or resulting corporation a written withdrawal of such stockholder's demand for an appraisal and an acceptance of the merger or consolidation, either within 60 days after the effective date of the merger or consolidation as provided in subsection (e) of this section or thereafter with the written approval of the corporation, then the right of such stockholder to an appraisal shall cease. Notwithstanding the foregoing, no appraisal proceeding in the Court of Chancery shall be dismissed as to any stockholder without the approval of the Court, and such approval may be conditioned upon such terms as the Court deems just; provided, however that this provision shall not affect the right of any stockholder who has not commenced an appraisal proceeding or joined that proceeding as a named party to withdraw such stockholder's demand for appraisal and to accept the terms offered upon the merger or consolidation within 60 days after the effective date of the merger or consolidation, as set forth in subsection (e) of this section.

(l) The shares of the surviving or resulting corporation to which the shares of such objecting stockholders would have been converted had they assented to the merger or consolidation shall have the status of authorized and unissued shares of the surviving or resulting corporation.

## PART II

## INFORMATION NOT REQUIRED IN PROXY STATEMENT/PROSPECTUS/INFORMATION STATEMENT

**Item 20—Indemnification and Officers**

Subsection (a) of Section 145 of the General Corporation Law of the State of Delaware (the "DGCL") empowers a corporation to indemnify any person who was or is a party or who is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe the person's conduct was unlawful.

Subsection (b) of Section 145 empowers a corporation to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that the person acted in any of the capacities set forth above, against expenses (including attorneys' fees) actually and reasonably incurred by the person in connection with the defense or settlement of such action or suit if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

Section 145 further provides that to the extent a director or officer of a corporation has been successful on the merits or otherwise in the defense of any action, suit or proceeding referred to in subsections (a) and (b) of Section 145, or in defense of any claim, issue or matter therein, such person shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection therewith; that indemnification provided for by Section 145 shall not be deemed exclusive of any other rights to which the indemnified party may be entitled; and the indemnification provided for by Section 145 shall, unless otherwise provided when authorized or ratified, continue as to a person who has ceased to be a director, officer, employee or agent and shall inure to the benefit of such person's heirs, executors and administrators. Section 145 also empowers the corporation to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against any liability asserted against such person and incurred by such person in any such capacity, or arising out of his status as such, whether or not the corporation would have the power to indemnify such person against such liabilities under Section 145.

Section 102(b)(7) of the DGCL provides that a corporation's certificate of incorporation may contain a provision eliminating or limiting the personal liability of a director to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, provided that such provision shall not eliminate or limit the liability of a director (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which

involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the DGCL or (iv) for any transaction from which the director derived an improper personal benefit.

The Gemphire Certificate of Incorporation provides that to the fullest extent permitted by the DGCL, a director of Gemphire shall not be personally liable to Gemphire or its stockholders for monetary damages for breach of fiduciary duty as a director. The Gemphire Bylaws provide that to the fullest extent permitted by applicable law as it presently exists or may hereafter be amended, any person who was or is made or is threatened to be made a party or is otherwise involved in any action, suit or proceeding, whether civil, criminal administrative or investigative, by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation or of a partnership, joint venture, trust, or other enterprise, against all expense, liability and loss actually and reasonably incurred or suffered by such person in connection with such action, suit or proceeding.

Gemphire entered into indemnification agreements with its directors and executive officers, in addition to the indemnification provided for in the Gemphire Certificate of Incorporation and Gemphire Bylaws, and intends to enter into indemnification agreements with any new directors and executive officers in the future.

Gemphire has purchased and intends to maintain insurance on behalf of any person who is or was a director or officer of Gemphire against any loss arising from any claim asserted against him or her and incurred by him or her in any such capacity, subject to certain inclusions.

Further, pursuant to the terms of the Merger Agreement, the provisions of the Gemphire Certificate of Incorporation and Gemphire Bylaws with respect to indemnification, advancement of expenses and exculpation of present and former directors and officers of Gemphire shall not be amended, modified or repealed for a period of six years from the Effective Time in a manner that would adversely affect the rights thereunder of individuals who, at or prior to the Effective Time, were officers or directors of Gemphire.

**Item 21—Exhibits**

***(a) Exhibit Index***

A list of exhibits filed with this registration statement on Form S-4 is set forth on the Exhibit Index and is incorporated herein by reference.

***(b) Financial Statements***

The financial statements filed with this registration statement on Form S-4 are set forth on the Financial Statement Index and are incorporated herein by reference.

**Item 22—Undertakings**

(a) The undersigned registrant undertakes as follows:

(1) that prior to any public reoffering of the securities registered hereunder through use of a prospectus which is a part of this registration statement, by any person or party who is deemed to be an underwriter within the meaning of Rule 145(c), the issuer undertakes that such reoffering prospectus will contain the information called for by the applicable registration form with respect to reofferings by persons who may be deemed underwriters, in addition to the information called for by the other items of the applicable form.

(2) that every prospectus (i) that is filed pursuant to paragraph (1) immediately preceding, or (ii) that purports to meet the requirements of Section 10(a)(3) of the Securities Act of 1933 and is used in connection with an offering of securities subject to Rule 415, will be

filed as a part of an amendment to the registration statement and will not be used until such amendment is effective, and that, for purposes of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(3) to respond to requests for information that is incorporated by reference into this proxy statement/prospectus/information statement pursuant to Item 4, 10(b), 11, or 13 of Form S-4, within one business day of receipt of such request, and to send the incorporated documents by first class mail or other equally prompt means. This includes information contained in documents filed subsequent to the effective date of the registration statement through the date of responding to the request.

(4) to supply by means of a post-effective amendment all information concerning a transaction, and the company being acquired involved therein, that was not the subject of and included in the registration statement when it became effective.

(b) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue.

## INDEX TO EXHIBITS

| EXHIBIT NUMBER | DESCRIPTION OF DOCUMENT |
|---|---|
| 1.1 | Equity Distribution Agreement, dated September 1, 2017, by and between the Registrant and Piper Jaffray & Co. (incorporated by reference to Exhibit 1.2 to the Registrant's Registration Statement on Form S-3, filed on September 1, 2017). |
| 2.1++ | Agreement and Plan of Merger, dated as of July 24, 2019, by and among Registrant, GR Merger Sub Inc. and NeuroBo Pharmaceuticals, Inc. (included as Annex A to the proxy statement/prospectus/information statement forming a part of this Registration Statement). |
| 2.2 | First Amendment to Agreement and Plan of Merger, dated as of July 24, 2019, by and among Registrant, GR Merger Sub Inc. and NeuroBo Pharmaceuticals, Inc., dated as of October 29, 2019 (included in Annex A to the proxy statement/prospectus/information statement forming a part of this Registration Statement) |
| 2.3++ | Form of CVR Agreement by and among Registrant, Grand Rapids Holders' Representative, LLC, as Holders' Representative, and Computershare Inc., as Rights Agent (included in Annex A to the proxy statement/prospectus/information statement forming a part of this Registration Statement). |
| 2.4 | Form of Gemphire Voting Agreement, by and between NeuroBo Pharmaceuticals, Inc., Registrant and certain stockholders of Registrant (included in Annex A to the proxy statement/prospectus/information statement forming a part of this Registration Statement). |
| 2.5++ | Form of NeuroBo Voting Agreement, by and between Registrant, NeuroBo Pharmaceuticals, Inc. and certain stockholders of NeuroBo (included in Annex A to the proxy statement/prospectus/information statement forming a part of this Registration Statement). |
| 2.6 | Form of Lock-Up Agreement, by and between Registrant, NeuroBo Pharmaceuticals, Inc. and certain stockholders of Registrant and NeuroBo (included in Annex A to the proxy statement/prospectus/information statement forming a part of this Registration Statement). |
| 3.1 | Third Amended and Restated Certificate of Incorporation of Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K, filed on August 10, 2016). |
| 3.2* | Second Amended and Restated Bylaws of Registrant. |
| 4.1 | Form of Common Stock Certificate of the Registrant (incorporated by reference to Exhibit 4.1 to the Registrant's Amendment No. 1 to the Registration Statement on Form S-1, filed on June 13, 2016). |
| 4.2 | Investor Rights Agreement, dated as of March 31, 2015, by and among the Registrant and the Investors listed therein as amended by First Amendment to Investor Rights Agreement, dated as of April 14, 2016 (incorporated by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form S-1, filed on April 18, 2016). |
| 4.3 | Form of Warrant to Purchase Common Stock (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K, filed on March 13, 2017). |
| 4.4 | Warrant to Purchase Stock, dated July 31, 2018, by and between Registrant and Silicon Valley Bank (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8- K, filed on August 6, 2018). |
| 5.1* | Opinion of Honigman LLP. |

| EXHIBIT NUMBER | DESCRIPTION OF DOCUMENT |
|---|---|
| 8.1* | Legal Opinion of Honigman LLP regarding tax matters. |
| 8.2* | Legal Opinion of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. regarding tax matters. |
| 10.1# | Form of Indemnification Agreement (incorporated by reference to Exhibit 10.1 to the Registrant's Registration Statement on Form S-1, filed on April 18, 2016). |
| 10.2# | Form of Amended and Restated 2015 Equity Incentive Plan (incorporated by reference to Exhibit 10.3 to the Registrant's Amendment No. 1 to the Registration Statement on Form S-1, filed on June 13, 2016). |
| 10.3# | Form of 2016 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.4 to the Registrant's Amendment No. 1 to the Registration Statement on Form S-1, filed on June 13, 2016). |
| 10.4# | Employment Agreement by and between the Registrant and Charles L. Bisgaier (incorporated by reference to Exhibit 10.7 to the Registrant's Registration Statement on Form S-1, filed on April 18, 2016). |
| 10.5# | Form of Executive Officer Employment Agreement (incorporated by reference to Exhibit 10.8 to the Registrant's Amendment No. 1 to the Registration Statement on Form S-1, filed on June 13, 2016). |
| 10.6 | Lease Agreement, dated as of May 18, 2016, by and between the Registrant and North Laurel Project, LLC (incorporated by reference to Exhibit 10.11 to the Registrant's Amendment No. 1 to the Registration Statement on Form S-1, filed on June 13, 2016). |
| 10.7 | Form of Note Purchase Agreement dated July 31, 2015 as amended on December 10, 2015, March 27, 2016 and April 14, 2016 (incorporated by reference to Exhibit 10.11 to the Registrant's Registration Statement on Form S-1, filed on April 18, 2016). |
| 10.8 | Form of Joinder Agreement to Note Purchase Agreement (incorporated by reference to Exhibit 10.12 to the Registrant's Registration Statement on Form S-1, filed on April 18, 2016). |
| 10.9 | Fourth Amendment to Note Purchase Agreement and Convertible Promissory Notes dated April 26, 2016 (incorporated by reference to Exhibit 10.14 to the Registrant's Amendment No. 1 to the Registration Statement on Form S-1, filed on June 13, 2016). |
| 10.10# | Non-Employee Director Compensation Policy (incorporated by reference to Exhibit 10.15 to the Registrant's Amendment No. 1 to the Registration Statement on Form S-1, filed on June 13, 2016). |
| 10.11# | Gemphire Therapeutics Inc. Inducement Plan (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed on October 3, 2016). |
| 10.12# | Form of Stock Option Grant Notice, Option Agreement and Notice of Exercise under the Gemphire Therapeutics Inc. Inducement Plan (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K, filed on October 3, 2016). |
| 10.13 | Form of Securities Purchase Agreement, dated March 10, 2017 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed on March 13, 2017). |

| EXHIBIT NUMBER | DESCRIPTION OF DOCUMENT |
|---|---|
| 10.14 | Form of Registration Rights Agreement, dated March 10, 2017 (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K, filed on March 13, 2017). |
| 10.15 | Loan and Security Agreement dated as of July 24, 2017 by and between Registrant and Silicon Valley Bank (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8- K, filed on July 25, 2017). |
| 10.16# | Separation and Release Agreement between Registrant and Mina Sooch dated May 30, 2017 (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q, filed on August 14, 2017). |
| 10.17# | Offer Letter between Registrant and Dr. Steve Gullans dated June 8, 2017 (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q, filed on August 14, 2017). |
| 10.18# | Amendment to Inducement Plan (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed on April 12, 2018). |
| 10.19# | Employment Agreement between Registrant and Dr. Steve Gullans dated May 1, 2018 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed on May 3, 2018). |
| 10.20# | Amendment to the Registrant's Amended and Restated 2015 Equity Incentive Plan (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K, filed on May 24, 2018). |
| 10.21+ | Amended and Restated License Agreement effective August 2, 2018 by and between Registrant and Pfizer Inc. (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed on August 6, 2018). |
| 10.22 | First Amendment to Loan and Security Agreement, dated as of July 31, 2018, by and between Registrant and Silicon Valley Bank (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed on August 6, 2018). |
| 10.23# | Employment Agreement by and between the Registrant and Seth Reno (incorporated by reference to Exhibit 10.26 to the Registrant's Annual Report on Form 10-K, filed on March 18, 2019). |
| 10.24# | Separation and Release Agreement with Jeffrey S. Mathiesen dated as of September 21, 2018 (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 10-Q, filed on November 8, 2018). |
| 10.25# | Separation and Release Agreement with Dr. Lee Golden dated as of September 21, 2018 (incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 10-Q, filed on November 8, 2018). |
| 10.26# | 2019 Equity Incentive Plan (included as Annex D to the proxy statement/prospectus/information statement forming a part of this Registration Statement) |
| 10.27# | First Amendment to Employment Agreement dated as of July 24, 2019 by and between Registrant and Steve Gullans (incorporated by reference to Exhibit 10.1 to the Registrant's Amendment No. 1 to Current Report on Form 8-K/A, filed on August 13, 2019). |
| 10.28# | First Amendment to Employment Agreement dated as of July 24, 2019 by and between Registrant and Charles L. Bisgaier (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K, filed on July 25, 2019). |

| EXHIBIT NUMBER | DESCRIPTION OF DOCUMENT |
|---|---|
| 10.29# | First Amendment to Employment Agreement dated as of July 24, 2019 by and between Registrant and Seth Reno (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K, filed on July 25, 2019). |
| 10.30# | Form of Restricted Stock Grant Notice and Restricted Stock Agreement under the Amended and Restated 2015 Equity Incentive Plan (Employees) (incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 8-K, filed on July 25, 2019). |
| 10.31# | Form of Restricted Stock Grant Notice and Restricted Stock Agreement under the Amended and Restated 2015 Equity Incentive Plan (Directors) (incorporated by reference to Exhibit 10.5 to the Registrant's Current Report on Form 8-K, filed on July 25, 2019). |
| 10.32+++ | License and Collaboration Agreement dated as of July 23, 2019 by and between Registrant and Beijing SL Pharmaceutical Co., Ltd. (incorporated by reference to Exhibit 10.6 to the Registrant's Current Report on Form 8-K, filed on July 25, 2019). |
| 10.33 | Acknowledgement of Lease Commencement between North Laurel Project, LLC and Registrant dated August 26, 2016 (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q, filed on August 9, 2019). |
| 10.34* | Lease Agreement by and between Invest Korea Plaza and NeuroBo Co., Ltd., dated February 21, 2018. |
| 10.35* | Membership Agreement by and between WeWork and NeuroBo Pharmaceuticals, Inc., dated December 2, 2019. |
| 10.36+++* | Manufacturing and Supply Agreement between Dong-A ST Co., Lt. and NeuroBo Pharmaceuticals, Inc., dated September 28, 2018. |
| 10.37#* | Consulting Agreement by and between Healthcare Capital LLC, owned and managed entirely by John L. Brooks III and NeuroBo Pharmaceuticals, Inc., dated February 1, 2018; Replacement Consulting Agreement, dated May 1, 2018 and extension of such agreement, dated January 1, 2019. |
| 10.38#* | Consulting Agreement by and between vZenium LLC, owned and managed entirely by Mark Versavel, and NeuroBo Pharmaceuticals, Inc., dated February 1, 2018; Replacement Consulting Agreement, dated May 1, 2018 and extension of such agreement, dated January 1, 2019. |
| 10.39#* | Independent Contractor Agreement by and between Therabo PLLC and NeuroBo Pharmaceuticals, Inc., dated March 1, 2019. |
| 10.40* | Lease Agreement by and between Gyeonggi Urban Innovation Corporation and NeuroBo Co., Ltd., dated May 2, 2019. |
| 10.41+++* | Fourth Amended and Restated Stockholders' Agreement, by and among the Initial Holders and the Investors on Schedule A thereto and NeuroBo Pharmaceuticals, Inc., dated May 30, 2019. |
| 10.42+++* | License Agreement by and between Dong-A ST Co., Ltd. and NeuroBo Pharmaceuticals, Inc., dated January 18, 2018, as amended on April 18, 2018 and July 24, 2019. |
| 10.43+++* | Acquisition Agreement by and between Dong-A ST Co., Ltd. and NeuroBo Pharmaceuticals, Inc., dated January 18, 2018, as amended on April 18, 2018 and July 24, 2019. |
| 10.44#* | 2018 Stock Plan for NeuroBo Pharmaceuticals, Inc. |

| EXHIBIT NUMBER | DESCRIPTION OF DOCUMENT |
|---|---|
| 10.45#* | Form of Stock Option Agreement for NeuroBo Pharmaceuticals, Inc. to the 2018 Stock Plan. |
| 10.46#* | Form of Notice of Grant of Restricted Stock Purchase Right for NeuroBo Pharmaceuticals, Inc. to the 2018 Stock Plan. |
| 10.47#* | Form of Notice of Grant of Stock Option for NeuroBo Pharmaceuticals, Inc. to the 2018 Stock Plan. |
| 10.48#* | Form of Notice of Grant of Restricted Stock Bonus for NeuroBo Pharmaceuticals, Inc. to the 2018 Stock Plan. |
| 10.49* | Form of Convertible Promissory Note Conversion Agreement by and between NeuroBo Pharmaceuticals, Inc. and certain Noteholders. |
| 10.50* | Form of Convertible Promissory Note Agreement. |
| 10.51* | Form of Convertible Promissory Note. |
| 10.52 | Second Amendment to Employment Agreement between Gemphire Therapeutics Inc. and Dr. Steven Gullans dated September 30, 2019 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed on October 3, 2019). |
| 10.53 | Second Amendment to Employment Agreement between Gemphire Therapeutics Inc. and Charles L. Bisgaier dated September 30, 2019 (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K, filed on October 3, 2019). |
| 10.54 | Second Amendment to Employment Agreement between Gemphire Therapeutics Inc. and Seth Reno dated September 30, 2019 (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K, filed on October 3, 2019). |
| 21.1* | Subsidiaries of the Registrant |
| 23.1 | Consent of Ernst &Young LLP |
| 23.2* | Consent of Honigman LLP (contained in Exhibit 5.1). |
| 23.3* | Consent of Honigman LLP (contained in Exhibit 8.1). |
| 23.4* | Consent of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. (contained in Exhibit 8.2). |
| 23.5 | Consent of BDO USA LLP |
| 24.1* | Power of Attorney (included on signature page to Form S-4 filed on September 3, 2019) |
| 99.1 | Form of Proxy Card for Annual Meeting of Stockholders of Registrant. |
| 99.2 | Proposed Amendment to the Third Amended and Restated Certificate of Incorporation of Registrant for the Gemphire Reverse Stock Split (included as Annex B to the proxy statement/prospectus/information statement forming a part of this Registration Statement). |
| 99.3 | Proposed Amendment to the Third Amended and Restated Certificate of Incorporation of Registrant for the Gemphire Name Change (included as Annex C to the proxy statement/prospectus/information statement forming a part of this Registration Statement). |

| EXHIBIT NUMBER | DESCRIPTION OF DOCUMENT |
|---|---|
| 99.4 | Opinion of Ladenburg Thalmann & Co., Inc., financial advisor to Gemphire (included as Annex E to the proxy statement/prospectus/information statement forming part of this Registration Statement) |
| 99.5* | Consent of Ladenburg Thalmann & Co., Inc., financial advisor to Gemphire |
| 99.6* | Consent of John L. Brooks, III to be named as a Director |
| 99.7* | Consent of Na Yeon (Irene) Kim to be named as a Director |
| 99.8* | Consent of Jeong Gyun Oh to be named as a Director |
| 99.9* | Consent of Roy Freeman to be named as a Director |
| 99.10* | Consent of Alice C. Brennan to be named as a Director |
| 99.11* | Consent of Steven Prelack to be named as a Director |
| 99.12* | Consent of Michael C. Ferrara to be named as a Director |
| 99.13* | Consent of Michael R. Jacobson to be named as a Director |
| 99.14* | Consent of Tae Heum (Ted) Jeong to be named as a Director |
| 101.INS* | XBRL Instance Document |
| 101.SCH* | XBRL Taxonomy Extension Schema Document |
| 101.CAL* | XBRL Taxonomy Extension Calculation Linkbase Document |
| 101.DEF* | XBRL Taxonomy Extension Definition Linkbase Document |
| 101.LAB* | XBRL Taxonomy Extension Label Linkbase Document |
| 101.PRE* | XBRL Taxonomy Extension Presentation Linkbase Document |

# Indicates management contract or compensatory plan.

* Previously filed.

+ Registrant has omitted and filed separately with the SEC portions of the exhibit pursuant to a confidential treatment request under Rule 406 promulgated under the Securities Act.

++ Certain schedules and exhibits have been omitted pursuant to Item 601(b)(2) of Regulation S-K. A copy of any omitted schedule and/or exhibit will be furnished to the SEC upon request.

+++ Certain schedules and exhibits have been omitted pursuant to Item 601(a)(5) of Regulation S-K. A copy of any omitted schedule and/or exhibit will be furnished to the SEC upon request. Certain portions of the exhibits that are not material and would be competitively harmful if publicly disclosed have been redacted pursuant to Item 601(b)(10)(iv) of Regulation S-K. Copies of the unredacted exhibits will be furnished to the SEC upon request.

**SIGNATURES**

Pursuant to the requirements of the Securities Act, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Ann Arbor, State of Michigan, on November 4, 2019.

**GEMPHIRE THERAPEUTICS INC.**

By: /s/ STEVEN GULLANS

Steven Gullans, Ph.D.
*President and Chief Executive Officer*

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed below by the following persons in the capacities and on the dates indicated.

| Signature | Title | Date |
|---|---|---|
| /s/ STEVEN GULLANS<br>Steven Gullans, Ph.D | President and Chief Executive Officer (*Principal Executive, Financial and Accounting Officer*) | November 4, 2019 |
| /s/ CHARLES L. BISGAIER<br>Charles L. Bisgaier, Ph.D. | Chief Scientific Officer and Chairman of the Board of Directors | November 4, 2019 |
| *<br>Kenneth Kousky | Director | November 4, 2019 |
| *<br>Pedro Lichtinger | Director | November 4, 2019 |
| *<br>Andrew Sassine | Director | November 4, 2019 |

*By: /s/ STEVEN GULLANS

Steven Gullans
Attorney-in-fact

**Exhibit 23.1**

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption “Experts” and to the use of our report dated March 15, 2019, included in Amendment No. 3 to the Registration Statement (Form S-4 No. 333-233588) and related proxy statement/prospectus/information statement of Gemphire Therapeutics Inc. for the registration of shares of its common stock.

/s/ Ernst & Young LLP

Detroit, Michigan
November 4, 2019

**Exhibit 23.5**

Consent of Independent Registered Public Accounting Firm

NeuroBo Pharmaceuticals, Inc.
Boston, Massachusetts

We hereby consent to the use in the Prospectus constituting a part of this Registration Statement on Form S-4 of our report dated August 30, 2019 (except for the subsequent events in Note 10, as to which the dates are October 10, 2019 and October 29, 2019), relating to the consolidated financial statements of NeuroBo Pharmaceuticals, Inc. (the "Company"), which is contained in that Prospectus. Our report contains an explanatory paragraph regarding the Company's ability to continue as a going concern.

We also consent to the reference to us under the caption "Experts" in the Prospectus.

/s/ BDO USA, LLP

Boston, Massachusetts
November 4, 2019

Exhibit 99.1

Gemphire Therapeutics

VOTE

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ENDORSEMENT_LINE_____ SACKPACK_____

MR A SAMPLE
DESIGNATION (IF ANY)
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## Your vote matters – here's how to vote!

You may vote online or by phone instead of mailing this card.

**Votes submitted electronically must be received by 11:59 p.m., Eastern Time, on December 5, 2019.**

**Online**
Go to **www.envisionreports.com/GEMP** or scan the QR code – login details are located in the shaded bar below.

**Phone**
Call toll free 1-800-652-VOTE (8683) within the USA, US territories and Canada

**Save paper, time and money! Sign up for electronic delivery at www.envisionreports.com/GEMP**

Using a **black ink** pen, mark your votes with an **X** as shown in this example. Please do not write outside the designated areas.

X

## Annual Meeting Proxy Card

1234 5678 9012 345

▼ IF VOTING BY MAIL, SIGN, DETACH AND RETURN THE BOTTOM PORTION IN THE ENCLOSED ENVELOPE. ▼

### A Proposals – The Board of Directors recommends a vote FOR all nominees and FOR Proposals 1, 2, 3, 4, 6 and 7 outlined below.

5. To elect two nominees for Class III directors to the Gemphire Board of Directors for a term of three years; provided that if the merger is completed, the Gemphire Board of Directors will be reconstituted as provided in the merger agreement.

| For All | Withhold All | For All Except |
|---|---|---|
| ☐ | ☐ | ☐ |

Mark here to vote for All EXCEPT - To withhold authority to vote for any individual nominee(s), write the number(s) of such nominee(s) below.

_____

**Nominees:**

01 - Pedro Lichtinger 02 - Andrew Sassine

| | For | Against | Abstain |
|---|---|---|---|
| 1. To approve the issuance of shares of Gemphire's common stock to NeuroBo stockholders pursuant to the merger agreement and the change of control of Gemphire resulting from the merger. | ☐ | ☐ | ☐ |
| 2. To approve an amendment to the third amended and restated certificate of incorporation of Gemphire to effect a reverse stock split of Gemphire's issued and outstanding common stock, within a range, as determined by the Gemphire Board of Directors of one new share for every 15 to 25 (or any number in between) shares outstanding. | ☐ | ☐ | ☐ |
| 3. To approve an amendment to the third amended and restated certificate of incorporation of Gemphire to change the corporate name of Gemphire from "Gemphire Therapeutics Inc." to "NeuroBo Pharmaceuticals, Inc." | ☐ | ☐ | ☐ |
| 4. To approve the adoption of the Gemphire Therapeutics Inc. 2019 Equity Incentive Plan. | ☐ | ☐ | ☐ |
| 6. To ratify the appointment of Ernst & Young LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2019. | ☐ | ☐ | ☐ |
| 7. To consider and vote upon an adjournment of the annual meeting if necessary to solicit additional proxies if there are not sufficient votes in favor of Proposal Nos. 1, 2, 3 or 4. | ☐ | ☐ | ☐ |

**Note: The proxies are authorized to vote in their discretion upon such other business as may properly come before the annual meeting or any postponement or adjournment thereof.**

### B Authorized Signatures – This section must be completed for your vote to be counted. – Date and Sign Below

Please sign exactly as name(s) appears hereon. Joint owners should each sign. When signing as attorney, executor, administrator, corporate officer, trustee, guardian, or custodian, please give full title.

| Date (mm/dd/yyyy) – Please print date below. | Signature 1 – Please keep signature within the box. | Signature 2 – Please keep signature within the box. |
|---|---|---|
| / / | | |

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**Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting:**
**The Notice and Proxy Statement are available at: www.envisionreports.com/GEMP**

▼ IF VOTING BY MAIL, SIGN, DETACH AND RETURN THE BOTTOM PORTION IN THE ENCLOSED ENVELOPE. ▼

## Proxy – Gemphire Therapeutics Inc.



### Notice of 2019 Annual Meeting of Stockholders

**315 East Eisenhower Parkway, Suite 100, Ann Arbor, MI 48108**

**Proxy Solicited by Board of Directors for Annual Meeting – 8:00 a.m. Eastern Time – December 6, 2019**

Dr. Steven Gullans and Dr. Charles Bisgaier, or any of them, each with the power of substitution, are hereby appointed as proxies and authorized to represent the undersigned and vote all of the shares of common stock of Gemphire Therapeutics Inc. that the undersigned stockholder(s) is/are entitled to vote at the Annual Meeting of Stockholders of Gemphire Therapeutics Inc. to be held at 315 East Eisenhower Parkway, Suite 100, Ann Arbor, MI 48108 on December 6, 2019 at 8:00 a.m. Eastern Time and at any postponement or adjournment thereof, with all powers that the undersigned would possess if personally present, upon and in respect of the matters set forth, and as designated, on the reverse side of this ballot, with discretionary authority as to such other matters as may properly come before the annual meeting and any adjournment or postponement thereof.

**This proxy, when properly executed, will be voted in the manner directed herein. If no such directions are indicated, this proxy will be voted in accordance with the recommendations of the Board of Directors.**

**The proxy holders are authorized to vote in their discretion upon such other business as may properly come before the annual meeting or any postponement or adjournment thereof.**

(Items to be voted appear on reverse side)

**C Non-Voting Items**

**Change of Address** – Please print new address below.

**Comments** – Please print your comments below.

**Meeting Attendance**
Mark box to the right if you plan to attend the Annual Meeting.