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As filed with the Securities and Exchange Commission on June 13, 2016.

Registration No. 333-210815

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

AMENDMENT NO. 1
TO

FORM S-1
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)

Mina Sooch
Chief Executive Officer
Gemphire Therapeutics Inc.
43334 Seven Mile Road, Suite 1000
Northville, Michigan 48167
(248) 681-9815
(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

With copies to:

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Approximate date of commencement of proposed sale to the public:
As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 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(c) 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 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, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act:

Large accelerated filer o	Accelerated filer o	Non-accelerated filer ☒ (Do not check if a smaller reporting company)	Smaller reporting company o

CALCULATION OF REGISTRATION FEE

TITLE OF EACH CLASS OF SECURITIES TO BE REGISTERED	AMOUNT TO BE REGISTERED[1]	PROPOSED MAXIMUM AGGREGATE OFFERING PRICE PER SHARE	PROPOSED MAXIMUM AGGREGATE OFFERINGPRICE[2]	AMOUNT OF REGISTRATIONFEE[3]
Common stock, par value $0.001 per share	4,312,500	$13.00	$56,062,500	$5,646

(1) Includes an additional 562,500 shares of common stock that the underwriters have the option to purchase.
(2) Estimated solely for the purpose of calculating the amount of the registration fee in accordance with Rule 457(a) of the Securities Act of 1933, as amended.
(3) The Registrant previously paid $6,042 in connection with the initial filing of this Registration Statement.

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 which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, 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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SUBJECT TO COMPLETION, DATED JUNE 13, 2016

PRELIMINARY PROSPECTUS

3,750,000 Shares

Gemphire Therapeutics Inc.

Common Stock

We are offering 3,750,000 shares of our common stock. This is our initial public offering and no public market currently exists for our common stock. We expect the initial public offering price of our common stock to be between $11.00 and $13.00 per share. We have applied to list our common stock on the NASDAQ Global Market under the symbol "GEMP".

We are an emerging growth company as that term is used in the Jumpstart Our Business Startups Act of 2012 and, as such, have elected to comply with certain reduced public company reporting requirements for this prospectus and future filings.

Investing in our common stock involves a high degree of risk. See "Risk Factors" beginning on page 12 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities, or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	PER SHARE	TOTAL
Public Offering Price	$	$
Underwriting Discounts and Commissions[1]		
Proceeds to Gemphire, before expenses		

(1) We have agreed to reimburse the underwriters for certain expenses. See "Underwriting."

Certain of our existing security holders and their affiliated entities, including stockholders affiliated with our directors, have indicated an interest in purchasing up to an aggregate of $10 million of shares of our common stock in this offering at the initial public offering price. However, because indications of interest are not binding agreements or commitments to purchase, the underwriters may determine to sell more, fewer or no shares in this offering to any of these parties, or any of these parties may determine to purchase more, fewer or no shares in this offering. The underwriters will receive the same underwriting discount on any shares purchased by these entities as they will on any other shares sold to the public in this offering.

We have granted the underwriters an option for a period of 30 days to purchase up to an additional 562,500 shares of common stock. If the underwriters exercise the option in full, the total underwriting discounts and commissions payable by us will be $ million, and the total proceeds to us, before expenses will be $ million.

The underwriters expect to deliver the shares of common stock to purchasers on or about , 2016.

Joint Book-Running Managers

Jefferies **RBC Capital Markets**

Co-Lead Manager

Canaccord Genuity

Co-Manager

Roth Capital Partners

Prospectus dated , 2016

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We have not authorized anyone to provide you with information that is different from that contained in this prospectus or in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We and the underwriters are offering to sell our common stock, and seeking offers to buy our common stock, only in jurisdictions where such offers and sales are permitted. You should assume that the information in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or any sale of our common stock. Our business, financial condition, results of operations and prospects may have changed since that date.

For investors outside the United States: We have not and the underwriters have not done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of common stock and the distribution of this prospectus outside the United States.

Through and including , 2016 (25 days after the date of this prospectus), all dealers effecting transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This delivery requirement is in addition to the obligation of dealers to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

PROSPECTUS SUMMARY

This summary highlights information contained in other parts of this prospectus. Because it is only a summary, it does not contain all of the information that you should consider before investing in shares of our common stock and it is qualified in its entirety by, and should be read in conjunction with, the more detailed information appearing elsewhere in this prospectus. You should read the entire prospectus carefully, especially "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements, related notes and other financial information elsewhere in this prospectus, before deciding to buy shares of our common stock. Unless the context requires otherwise, references in this prospectus to "we," "us," "the Company" and "our" refer to Gemphire Therapeutics Inc.

Overview

We are 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. Dyslipidemia is generally characterized by an elevation of low-density lipoprotein cholesterol (LDL-C), or bad cholesterol, triglycerides, or fat in the blood, or both. We are developing our product candidate gemcabene (CI-1027), a novel, once-daily, oral therapy, for patients who are unable to achieve normal levels of LDL-C or triglycerides with currently approved therapies, primarily statin therapy. Gemcabene's mechanism of action is designed to enhance the clearance of very low-density lipoproteins (VLDLs) in the plasma and inhibit the production of fatty acids and cholesterol in the liver. Gemcabene is liver-directed and inhibits apolipoprotein C-III (apoC-III) protein in the liver and may inhibit acetyl-CoA carboxylase (ACC) in the liver. Gemcabene has been tested as monotherapy and in combination with statins and other drugs in 895 subjects, which we define as healthy volunteers and patients, across 18 Phase 1 and Phase 2 clinical trials and has demonstrated promising evidence of efficacy, safety and tolerability.

Cardiovascular disease is a major health concern, causing more deaths globally than any other disease. Dyslipidemia is generally viewed as an important predictor of cardiovascular events including heart attack and stroke, and a cause of cardiovascular disease. It comprises one of the largest therapeutic areas with annual worldwide drug sales of approximately $22 billion in 2013. We estimate more than 40% of Americans have LDL-C or triglycerides, or both, above a normal range. Statins, such as Lipitor, marketed by Pfizer Inc. (Pfizer), and Crestor, marketed by AstraZeneca Pharmaceuticals LP (AstraZeneca), among others, are standard of care for LDL-C lowering, while fibrates, prescription fish oils and niacin are standar of care for triglyceride lowering. Although these drugs are highly prescribed and capable of reducing LDL-C and triglyceride levels, many patients are unable to effectively manage their dyslipidemia with currently approved therapies and are in need of better treatment alternatives. For example, approximately 40% of patients on statins are unable to meet their LDL-C lowering goal, and doubling a statin dose has shown to incrementally lower LDL-C levels by a nominal percentage (approximately 6% based on historical evidence), while increasing safety and tolerability concerns. An even higher percentage of patients with severe hypertriglyceridemia do not achieve triglyceride levels low enough to reduce the risk of developing co-morbidities such as pancreatitis.

We believe gemcabene possesses a differentiated product profile compared to other therapies in the market and in clinical development. Key attribute of our product candidate include the following:

- **Cost-effective, once-daily, oral therapy.** Gemcabene is a small molecule formulated as a tablet and is cost effective to manufacture. As a once-daily, oral therapy, gemcabene, if approved, would be more convenient than other non-statin therapies, many of which require frequent injections or multiple daily doses. We expect to take a value-based approach to pricing across the target indications.

- **Promising safety and tolerability.** Gemcabene was observed to be well tolerated in 895 subjects across 18 Phase 1 and Phase 2 trial both as monotherapy and in combination with statins. No subjects died and no subjects experienced a serious adverse event (SAE) that was considered to be related to gemcabene. Adverse events (AEs) reported were generally mild to moderate in intensity.

Gemcabene did not appear to increase the reporting of myalgia (muscle pain) when added to statin therapy and no treatment related events of myalgia were reported in any gemcabene monotherapy arm in the dyslipidemia trials.

- **Significant lipid-lowering of LDL-C, high-sensitivity C-reactive protein (hsCRP) and triglycerides.** In Phase 2 trials, patients with hypercholesterolemia treated with gemcabene as monotherapy were observed to have significantly lowered LDL-C by approximately 30% from baseline and significantly lowered hsCRP by approximately 40% from baseline. In addition, patients with hypertriglyceridemia (≥200 mg/dL) were observed to have significantly lowered triglycerides by approximately 40%, and based on post-hoc analysis, gemcabene was observed to lower triglycerides by up to 60% in patients with severe triglyceride levels (≥500 mg/dL). Our product candidate's ability to meaningfully lower levels of multiple key lipids attributable to cardiovascular disease may expand its use across multiple indications within the dyslipidemia market.

- **Additive effect in combination with statins.** In a Phase 2 trial in patients with uncontrolled hypercholesterolemia while on stable statin therapy, gemcabene was observed to significantly lower LDL-C by an additional 25% to 31% from baseline. This data indicates that gemcabene may better treat a large population of patients who are unable to reach their lipid goal with statins and other currently prescribed therapies.

- **No drug-drug interactions when combined with high-intensity statin doses.** In two Phase 1 trials, gemcabene was tested in combination with high-intensity statin doses, 80 mg simvastatin and 80 mg atorvastatin. No clinically relevant drug-drug interactions were observed. In addition, gemcabene has been formulated as a fixed-dose combination tablet with various atorvastatin doses, which may offer additional convenience and compliance to patients.

We are initially pursuing gemcabene in the following four indications (representing approximately 14 million addressable patients in the United States) as a treatment in addition to maximally tolerated statin therapy (the maximum dose tolerated by each patient) for patients who are unable to reach their lipid-lowering goals:

- homozygous familial hypercholesterolemia (HoFH), a rare genetic lipid disorder which results in elevated LDL-C usually due to mutations in both alleles, a pair of genes on a chromosome responsible for a specific trait, of the LDL-receptor gene;

- heterozygous familial hypercholesterolemia (HeFH), a more prevalent genetic lipid condition which results in elevated LDL-C usually due to a mutation in one allele of the LDL-receptor gene;

- atherosclerotic cardiovascular disease (ASCVD), patients with hypercholesterolemia, or patients with elevated LDL-C who have had or are at risk for a cardiovascular event, such as heart attack or stroke; and

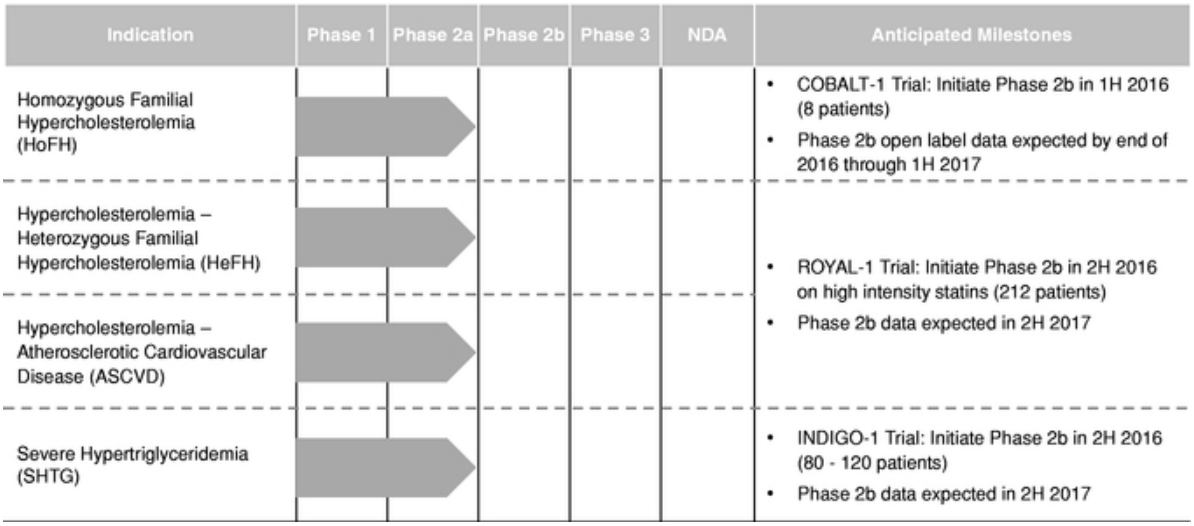
- severe hypertriglyceridemia (SHTG), in which patients with elevated triglycerides are at an increased risk of developing co-morbidities such as pancreatitis.

We are pursuing HoFH given that gemcabene has recently received orphan drug designation for this indication. We believe we can design an efficient development plan to provide a new treatment alternative for those patients. Furthermore, we believe that gemcabene's potential ability to treat patients in the most severe segment of the dyslipidemia market, HoFH, will enhance brand awareness among key thought leaders and physicians. We are developing gemcabene for HeFH, ASCVD and SHTG given gemcabene's: (1) promising clinical data in these indications; (2) cost-effective manufacturing process; (3) convenient oral dosing; (4) viability as adjunct combination therapy; and (5) large commercial potential. By the end of 2016 we expect to initiate three late stage clinical trials for gemcabene in HoFH, hypercholesterolemia, including HeFH and ASCVD patients on maximally tolerated statins, and SHTG.

We believe it is unlikely the FDA will require us to initiate a cardiovascular outcomes trial for our target indications. The FDA has not required the initiation or completion of cardiovascular outcomes trials for

recent approvals of certain dyslipidemia therapies, including non-statin therapies targeting LDL-C for the treatment of HoFH, HeFH and ASCVD and triglyceride lowering for treatment of SHTG.

Gemcabene Pipeline Indications



Our company was co-founded by former Pfizer employees, Dr. Charles Bisgaier and David Lowenschuss, who were responsible for licensing exclusive worldwide rights to gemcabene from Pfizer in April 2011. Prior to co-founding the original Esperion Therapeutics, Inc. (Esperion) in 1998, which was acquired by Pfizer in 2004, Dr. Bisgaier worked at Parke-Davis, a division of Warner-Lambert Company from 1990 to 1998, and was instrumental in the discovery and development of gemcabene, as well as the development of Lipitor and Lopid. Many of our employees and consultants have been involved in the historical development of gemcabene and other innovative dyslipidemia product candidates in development, including ETC-216, a synthetic high-density lipoprotein mimetic based on ApoAI-Milano (developed by the original Esperion, Pfizer and currently The Medicines Company), ACP-501 (developed by AlphaCore Pharma, later acquired by AstraZeneca) and ETC-1002 (developed by the original Esperion, Pfizer and the current Esperion). We have organized a medical advisory board including Drs. John Kastelein, Evan Stein, Robert Hegele and Dirk Blom who combined have been involved in numerous dyslipidemia and cardiovascular disease clinical trials (e.g. statins from their earliest trials, fibrates, ezetimibe, cholesteryl ester transfer protein (CETP) inhibitors, extended release niacin, antisense oligonucleotides (mipomersen) and monoclonal antibodies including PCSK inhibitors) and published numerous research papers. The management team, led by our CEO Mina Sooch, collectively has significant experience in operating and financing biopharmaceutical companies and discovering, developing and commercializing treatments in the cardiovascular and orphan markets.

Our Strategy

Our goal is to become a leading cardio-metabolic biopharmaceutical company that develops and commercializes best-in-class therapies for patients, and provides attractive solutions for physicians and payors.

The core elements of our strategy to achieve our goal are the following:

§ ***Advance the late-stage clinical development of gemcabene across multiple target indications.*** We are focused on a broad spectrum of indications for dyslipidemia patients ranging from the orphan indication HoFH to more prevalent conditions, such as HeFH, ASCVD and SHTG. We believe that these indications present favorable regulatory pathways and the highest likelihood of commercial

success compared to other potential indications for gemcabene. By the end of 2016, we plan to initiate three late stage clinical trials with early results expected starting at the end of 2016 continuing through the second half of 2017.

- ***Expand the breadth of indications beyond dyslipidemia for gemcabene.*** We are also exploring the utility of gemcabene in Nonalcoholic Steatohepatitis (NASH) and/or Nonalcoholic Fatty Liver Disease (NAFLD) given its mechanism of action that decreases the production of the apoC-III protein and may inhibit ACC, which has been observed to result in the lowering of triglycerides in the plasma and may reduce liver fat. We plan to test gemcabene in an established NASH preclinical model for further proof of concept. We will organize the appropriate mid-stage clinical studies.

- ***Pursue oral combination opportunities for gemcabene.*** Oral combination therapy is the current paradigm for the treatment of dyslipidemia, as patients typically require multiple drugs to address their dyslipidemia as well as other co-morbidities. As part of our development strategy, we plan to formulate and manufacture gemcabene in fixed-dose combination with statins and other lipid-lowering agents.

- ***Continue to build out our patent portfolio for gemcabene.*** We believe our patents and patent applications provide us with a significant competitive advantage. As of May 2, 2016 we had 27 issued patents and 23 pending patent applications for gemcabene in the United States and internationally directed to formulations, compositions, methods of use and methods of manufacturing. We intend to aggressively prosecute and defend our patent portfolio and pursue new patents in order to ensure the long term commercial success of gemcabene.

- ***Maximize the global commercial value of gemcabene.*** We have retained all commercial and manufacturing rights to gemcabene. We believe we could independently commercialize gemcabene for the treatment of patients with HoFH in the United States with a targeted sales force and would seek commercial partners outside of the United States. For larger indications, such as HeFH, ASCVD and SHTG, we would assess partnership opportunities for Phase 3 development and the worldwide commercialization of gemcabene.

- ***Leverage the expertise and experience of our management team to evaluate future in-licensing and acquisition opportunities.*** Across our leadership team, we have discovered and/or developed Lipitor, Lopid, ETC-1002, ETC-216, ACP-501, CER-209, CER-001 and PNT-2258, and commercialized many lipid regulating and orphan drugs including Crestor, Myalept and Lynparza. Our team is well-qualified to identify and in-license or acquire clinical-stage cardio-metabolic assets, and we intend to evaluate these opportunities to diversify our pipeline and generate long-term growth.

Risks Associated With Our Business

Our business is subject to numerous risks and uncertainties, including those highlighted in the section entitled "Risk Factors" immediately following this prospectus summary. These risks include, but are not limited to, the following:

- We have incurred only losses since inception and have not generated any revenue, and we expect to incur losses for the foreseeable future and may never achieve or maintain profitability.

- We currently depend entirely on the success of gemcabene, our only product candidate.

- The results of previous clinical trials may not be predictive of future results, and the results of our current and planned clinical trials may not satisfy the requirements of the FDA or non-U.S. regulatory authorities.

- We may fail to demonstrate safety and efficacy for gemcabene or see undesirable side effects that were not previously identified.

- We may experience difficulties in clinical development, such as the enrollment of patients in clinical trials, which could result in increased costs to us and could delay our development timeline.

- We may never receive marketing approval for, or successfully commercialize, gemcabene for any indication.

- Gemcabene is subject to a partial clinical hold with respect to clinical trials of longer than six months in duration until ongoing preclinical toxicology studies are complete, which may lead to significant delays or the failure of gemcabene to obtain marketing approval.
- Changes in regulatory requirements or U.S. Food and Drug Administration (FDA) guidance, or unanticipated events during our clinical trials, may result in changes to clinical trial protocols or additional clinical trial requirements, such as the initiation or completion of a cardiovascular outcomes trial.
- We rely on third-party clinical research organizations, suppliers and manufacturers, and we are not able to directly control all aspects of our preclinical studies, clinical trials and drug manufacturing.
- We depend on intellectual property licensed from Pfizer for gemcabene, and the termination of this license would harm our business.
- If we are unable to adequately protect our proprietary technology or maintain issued patents sufficient to protect gemcabene or any futur product candidate, others could compete against us more directly.
- We need to establish sales and marketing capabilities or enter into agreements with third parties to sell and market gemcabene, if approved, for successful commercialization.
- We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than we do.
- Our future success depends on our ability to attract and retain our executives and key personnel.
- Our recurring operating losses have raised substantial doubt regarding our ability to continue as a going concern. We will need substantial additional capital in the future. If additional capital is not available, we will have to delay, reduce or cease operations.

Corporate Information

We were formed in Michigan as Michigan Life Therapeutics, LLC (MLT) in November 2008. In October 2014, we 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 our incorporation from Michigan to Delaware and to convert from a limited liability company to a corporation. Our principal executive offices are located at 43334 Seven Mile Road, Suite 1000, Northville, Michigan 48167, and our telephone number is (248) 681-9815. Our corporate website address is www.gemphire.com. Information contained on or accessible through our website is not a part of this prospectus, and the inclusion of our website address in this prospectus is an inactive textual reference only.

This prospectus contains references to trademarks belonging to us and other entities. Solely for convenience, trademarks and trade names referred to in this prospectus, including logos, artwork and other visual displays, may appear without the ® or ™ symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other companies' trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

Implications of Being an Emerging Growth Company

As a company with less than $1.0 billion in revenue during our last fiscal year, we qualify as an "emerging growth company," as defined in the Jumpstart Our Business Startups Act (JOBS Act) enacted in April 2012. As an "emerging growth company" we are:

- permitted to present only two years of audited financial statements and only two years of related Management's Discussion and Analysis of Financial Condition and Results of Operations in this prospectus;

- not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended;
- permitted to take advantage of reduced disclosure obligations regarding executive compensation in our periodic reports, proxy statements and registration statements; and
- permitted to take advantage of exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We may use these provisions until the last day of our fiscal year following the fifth anniversary of the closing of this offering. However, if certain events occur prior to the end of such five-year period, including if we become a "large accelerated filer," our annual gross revenue exceeds $1.0 billion or we issue more than $1.0 billion of non-convertible debt in any three-year period, we will cease to be an emerging growth company prior to the end of such five-year period. We have elected to take advantage of certain of the reduced disclosure obligations in the registration statement of which this prospectus is a part and may elect to take advantage of other reduced reporting requirements in future filings. As a result, the information that we provide to our stockholders may be different than you might receive from other public reporting companies in which you hold equity interests.

The JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. We have irrevocably elected not to avail ourselves of this exemption and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

The Offering

Common stock offered by us	3,750,000 shares
Option to purchase additional shares	We have granted to the underwriters the option, exercisable for 30 days from the date of this prospectus, to purchase up to 562,500 additional shares of common stock.
Common stock to be outstanding after this offering	9,181,615 shares (9,744,115 shares if the underwriters exercise their option to purchase additional shares in full)
Use of proceeds	We estimate that we will receive net proceeds of approximately $39.9 million (or approximately $46.1 million if the underwriters exercise their option to purchase additional shares in full) from the sale of the shares of common stock offered by us in this offering, based on an assumed initial public offering price of $12.00 per share, the mid-point of the estimated price range set forth on the cover page of this prospectus and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. We intend to use the net proceeds from this offering, together with cash and cash equivalents, to fund: development costs associated with three late stage clinical trials of gemcabene for our target indications, our planned end of Phase 2 meetings with the FDA, manufacturing related activities, preclinical studies and related activities for gemcabene and the balance for general corporate purposes. See "Use of Proceeds."
Risk factors	You should read the "Risk Factors" section of this prospectus for a discussion of certain of the factors to consider carefully before deciding to purchase any shares of our common stock.
Proposed NASDAQ Global Market symbol	"GEMP"
Potential insider participation	Certain of our existing security holders and their affiliated entities, including stockholders affiliated with our directors, have indicated an interest in purchasing an aggregate of up to $10 million of shares of our common stock in this offering at the initial public offering price. However, because indications of interest are not binding agreements or commitments to purchase, the underwriters may determine to sell more, fewer or no shares in this offering to any of these parties, or any of these parties may determine to purchase more, fewer or no shares in this offering. The underwriters will receive the same underwriting discount on any shares purchased by these entities as they will on any other shares sold to the public in this offering.

Directed share program	At our request, the underwriters have reserved up to 10% of the shares of our common stock offered by this prospectus for sale, at the initial public offering price, to our directors, officers, employees and other individuals associated with us and members of their respective families We do not know if these persons will choose to purchase all or any portion of these reserved shares, but any purchases they do make will reduce the number of shares available to the general public. The underwriters will receive the same underwriting discount on any shares purchased by these investors as they will on any other shares sold to the public in this offering. Any shares purchased by such investors will be subject to the lock-up restrictions described in the section titled "Underwriting."

The number of shares of our common stock to be outstanding after this offering is based on 5,431,615 shares of common stock outstanding as of March 31, 2016, which excludes:

- 302,842 shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2016 at a weighted-average exercise price of $2.428 per share;
- 1,825,200 shares of common stock issuable upon the exercise of stock options with a per share exercise price equal to the initial public offering price to be granted to certain officers, directors, employees and consultants in connection with this offering;
- 574,800 shares of common stock reserved for future issuance under our 2015 Equity Incentive Plan (the 2015 Plan), which will be amended and restated in connection with this offering, and 150,000 shares of common stock reserved for future issuance under our 201 Employee Stock Purchase Plan, which will become effective in connection with this offering, as well as any automatic increases in the number of shares of common stock reserved for future issuance under these plans; and
- shares of common stock issuable upon conversion of our convertible notes issued after March 31, 2016, which notes will automatically convert immediately prior to the closing of this offering into 748,703 shares, assuming the closing of this offering occurred on May 2, 2016.

Unless otherwise indicated, all information contained in this prospectus assumes the following:

- the conversion of all of our convertible preferred stock outstanding as of March 31, 2016 into 745,637 shares of common stock immediately prior to the closing of this offering;
- a 1-for-3.119 reverse split of our common stock and preferred stock, which became effective on April 27, 2016;
- the issuance of 59,992 shares of common stock pursuant to the Accrued Dividends described elsewhere in this prospectus in the sectior titled "Dividend Policy" immediately prior to the closing of the offering (assuming the closing of the offering occurred on March 31, 2016);
- the automatic conversion of the principal and accrued and unpaid interest outstanding as of March 31, 2016 on our convertible notes issued prior to March 31, 2016 into 867,498 shares of common stock immediately prior to the closing of the offering;
- no exercise by the underwriters of their option to purchase up to an additional 562,500 shares of our common stock; and
- the filing of our amended and restated certificate of incorporation and the adoption of our amended and restated bylaws immediately pric to the closing of this offering.

Summary Financial Data

The following summary financial data should be read together with our financial statements and related notes, "Capitalization," "Selected Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing elsewhere in this prospectus. The summary financial data in this section are not intended to replace our financial statements and the related notes.

We derived the summary statements of operations data for the years ended December 31, 2014 and 2015 and the summary balance sheet data as of December 31, 2015 from our audited financial statements and related notes appearing elsewhere in this prospectus. We derived the summary statements of operations data for the three months ended March 31, 2015 and 2016 and the summary balance sheet data as of March 31, 2016 from our unaudited interim financial statements appearing elsewhere in this prospectus. The unaudited interim financial statements have been prepared on the same basis as our audited financial statements and include all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of the financial information set forth in those statements. Our historical results for any prior period are not necessarily indicative of results expected in any future period, and our interim results are not necessarily indicative of results for a full year or any other period.

	Year Ended December 31,		Three Months Ended March 31,	
	2014	2015	2015	2016
			(unaudited)	
	(in thousands, except share and per share amounts)			
Statements of Operations Data:				
Operating expenses:				
General and administrative	$ 214	$ 3,177	$ 475	$ 1,050
Research and development	52	3,991	206	1,176
Acquired in-process research and development	—	908	908	—
Total operating expenses	266	8,076	1,589	2,226
Loss from operations	(266)	(8,076)	(1,589)	(2,226)
Interest (expense) income	(55)	(762)	(690)	127
Loss on convertible note extinguishment	—	(198)	—	—
Other income (expense)	1	7	—	(4)
Net loss	(320)	(9,029)	(2,279)	(2,103)
Adjustment to redemption value on Series A convertible preferred stock	—	(2,968)	(2,517)	(149)
Premium upon substantial modification of convertible notes with certain stockholders	—	(1,047)	—	—
Net loss attributable to common stockholders	$ (320)	$ (13,044)	$ (4,796)	$ (2,252)
Net loss per share attributable to common stockholders, basic and diluted[(1)]	$ (0.21)	$ (4.54)	$ (2.27)	$ (0.65)
Weighted-average shares used in computing net loss per share attributable to common stockholders, basic and diluted[(1)]	1,521,703	2,875,053	2,110,097	3,468,764
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)[(1)]		$ (2.95)		$ (0.42)
Weighted-average shares used in computing pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)[(1)]		4,305,100		5,301,705

(1) See notes 2 and 10 to our financial statements appearing elsewhere in this prospectus for further details on the calculation of net loss per share attributable to common stockholders, basic and diluted, and pro forma net loss per share attributable to common stockholders, basic and diluted, and the weighted-average number of shares used in computation of the per share amounts. On April 22, 2016, our board of directors approved a 1-for-3.119 reverse stock split of our common stock and preferred stock, which became effective on April 27, 2016. All share and per share data in this table have been adjusted to reflect the reverse stock split.

	March 31, 2016 (in thousands)		
	Actual	Pro Forma(1)	Pro Forma As Adjusted(2)(3)
		(unaudited)	
Balance Sheet Information:			
Cash and cash equivalents	$ 1,629	$ 1,629	$ 41,479
Working capital	(599)	(599)	39,251
Total assets	2,637	1,658	41,508
Convertible notes (including premium conversion derivative)	6,792	—	—
Total liabilities	9,044	2,252	2,252
Series A convertible preferred stock	8,102	—	—
Accumulated deficit	(14,521)	(14,535)	(14,535)
Total stockholders' (deficit) equity	(14,509)	(594)	39,256

(1) Pro forma balance sheet data reflects (i) the automatic conversion of all outstanding shares of our convertible preferred stock into 745,637 shares of common stock immediate prior to the closing of this offering, (ii) the issuance of 59,992 shares of common stock immediately prior to the closing of the offering pursuant to the Accrued Dividends described elsewhere in this prospectus in the section titled "Dividend Policy" (assuming the closing of the offering occurred on March 31 2016), (iii) the issuance of 867,498 shares of common stock pursuant to the automatic conversion of the principal and accrued and unpaid interest outstanding on March 31, 2016 on our convertible notes issued prior to March 31, 2016, immediately prior to the closing of this offering, (iv) the accelerated vesting of 162,945 shares of restricted stock unvested as of March 31, 2016 valued at approximately $14,000 held by certain employees upon the closing of this offering and (v) the filing of our amended and restated certificate of incorporation immediately prio to the closing of this offering.

(2) Pro forma as adjusted balance sheet data reflects (i) the pro forma adjustments set forth above in footnote (1) and (ii) the issuance and sale of 3,750,000 shares of common stock in this offering at an assumed initial public offering price of $12.00 per share, the midpoint of the estimated price range set forth on the cover page of this prospectus, afte deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

(3) Each $1.00 increase (decrease) in the assumed initial public offering price of $12.00 per share, the mid-point of the estimated price range set forth on the cover page of this prospectus, would increase (decrease) each of our cash and cash equivalents, working capital, total assets and total stockholders' (deficit) equity by approximately $3.5 million assuming that the number of shares offered by us remains the same and after deducting estimated underwriting discounts and commissions. Similarly, each increase (decrease) of 1,000,000 shares in the number of shares offered by us would increase (decrease) each of our cash and cash equivalents, working capital, total assets and total stockholders' (deficit) equity by approximately $11.2 million, assuming the assumed initial public offering price remains the same and after deducting estimated underwriting discounts and commissions. The information above is illustrative only, and our balance sheet following the completion of this offering will be adjusted based on the actual initial public offering price and other terms of the offering determined at the pricing of this offering.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this prospectus, including our financial statements, related notes and other financial information appearing elsewhere in this prospectus and "Management's Discussion and Analysis of Financial Condition and Results of Operations," before deciding whether to invest in our common stock. The occurrence of any of the events or developments described below could harm our business, financial condition, results of operations and growth prospects. In such an event, the market price of our common stock could decline and you may lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations.

Risks Related to the Development of Gemcabene or any Future Product Candidate

We currently depend entirely on the success of gemcabene, our only product candidate. We may never receive marketing approval for, or successfully commercialize, gemcabene for any indication.

We currently have only one product candidate, gemcabene, in clinical development, and our business depends on its successful clinical development, regulatory approval and commercialization. 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. We are not permitted to market gemcabene in the United States until we receive approval of a new drug application (NDA) from the FDA or in any foreign countries until we receive the requisite approval from such countries. We have 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, we 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 the proceeds we raise in this offering. 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 we are able to complete development of gemcabene, we cannot assure you that gemcabene will be approved or commercialized.

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;
- § we 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 our 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 our interpretation of data from preclinical studies or clinical trials;
- § the FDA may not accept data generated at our 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 our 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 we enter 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 our current and planned clinical trials may not satisfy the requirements of the FDA or non-U.S. regulatory authorities.

The results from the prior preclinical studies and clinical trials for gemcabene discussed elsewhere in this prospectus may not necessarily be predictive of the results of future preclinical studies or clinical trials. Even if we are able to complete our planned clinical trials of gemcabene according to our current development timeline, the results from our prior clinical trials of gemcabene may not be replicated in these future trials. Many companies in the pharmaceutical and biotechnology industries (including those with greater resources and experience than us) have suffered significant setbacks in late-stage clinical trials after achieving positive results in early stage development, and we cannot be certain that we 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 we fail to produce positive results in our clinical trials of gemcabene, the development timeline and regulatory approval and commercialization prospects for gemcabene and our business and financial prospects, would be adversely affected.

Further, gemcabene may not be approved even if it achieves its primary endpoint in Phase 3 registration trials. The FDA or non-U.S. regulatory authorities may disagree with our trial design and our 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 our product candidate for fewer or more limited indications than we request or may grant approval contingent on the performance of costly post-marketing clinical trials.

We plan to commence three late stage clinical trials by the end of 2016. If successful, we plan to eventually seek regulatory approvals of gemcabene initially in the United States, Canada and Europe, and we may seek approvals in other geographies. Before obtaining regulatory approvals for the commercial sale of any product candidate for any target indication, we 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. We cannot assure you that the FDA or non-U.S. regulatory authorities would consider our 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 our clinical trials and in determining whether the results demonstrate that gemcabene is safe and effective. If we are required to conduct clinical trials of gemcabene in addition to those we have planned prior to approval, such as a cardiovascular outcomes trial, we will need substantial additional funds, and we 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 fail to demonstrate safety and efficacy to the satisfaction of regulatory authorities or do not otherwise produce positive results, we 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, we must complete preclinical development (including, but not limited to, two-year rat and mouse carcinogenicity studies), and supportive pharmacology studies and Phase 2b and Phase 3 clinical trials to demonstrate the safety and efficacy in humans. Preclinical development and extensive clinical trials will also be required before obtaining marketing approval from regulatory authorities for any other product candidate we may pursue in the future. 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.

We, or our future collaborators, may experience numerous unforeseen events during, or as a result of, clinical trials that could result in increased development costs, delay, limit or prevent our ability to receive marketing approval or commercialize gemcabene or any other product candidate we may pursue in the future, including:

- § regulators or institutional review boards (IRBs) may not authorize us or our 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 us to perform additional clinical trials or use substantial additional resources to obtain regulatory approval;
- § we 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 we may decide, or regulators may require us, to conduct additional clinical trials or abandon product development programs;
- § the number of patients required for clinical trials may be larger than we anticipate, enrollment in these clinical trials may be slower than we anticipate or participants may drop out of these clinical trials at a higher rate than we anticipate;
- § our third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;
- § our patients or medical investigators may be unwilling to follow our clinical trial protocols;
- § we 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 we anticipate;
- § 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 us or our investigators, regulators or IRBs to suspend or terminate the trials.

If we experience delays or difficulties in the enrollment of patients in clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented.

We or our future collaborators may not be able to initiate or continue clinical trials for gemcabene or any future product candidate if we are 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 us 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;
- our payments for conducting 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; and
- proximity and availability of clinical trial sites for prospective patients.

We expect that our late stage clinical trials of gemcabene will commence by the end of 2016 and may take up to 12 months to enroll; however, we cannot assure you that our timing and enrollment assumptions are correct given the above factors. Our inability to enroll a sufficient number of patients for our clinical trials or retain sufficient enrollment through the completion of our trials would result in significant delays or may require us to abandon one or more clinical trials altogether. Enrollment delays in our clinical trials may result in increased development costs for our product candidates and cause our stock price to decline.

We or others could discover that gemcabene or any product candidate we 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 our 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 our completed clinical trials), could cause us 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. The most common events reported to date have been headache, weakness, nausea, dizziness, upset stomach, infection, abnormal bowel movements, myalgia and abnormal kidney function tests.

The discovery that gemcabene or any future product candidate lacks sufficient efficacy or that it causes undesirable side effects that were not previously identified could prevent us from commercializing such product candidate and generating revenues from its sale. In addition, if we receive marketing approval for gemcabene and we 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;
- we 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;
- we may be subject to fines, injunctions or the imposition of civil or criminal penalties;
- we could be sued and held liable for harm caused to patients;
- the product may be rendered less competitive and sales may decrease; or
- our reputation may suffer generally both among clinicians and patients.

Any one or a combination of these events could prevent us 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 us from generating significant, or any, revenues from the sale of the product.

Changes in regulatory requirements or FDA guidance, or unanticipated events during our clinical trials, may result in changes to clinical trial protocols or additional clinical trial requirements, such as the initiation or completion of a cardiovascular outcomes trial, which could result in increased costs to us and could delay our development timeline.

Changes in regulatory requirements or FDA guidance, or unanticipated events during our clinical trials, may force us to amend clinical trial protocols or the FDA may impose additional clinical trial requirements. Amendments to our clinical trial protocols would require resubmission to the FDA and IRBs for review and approval, and may adversely impact the cost, timing or successful completion of a clinical trial. If we experience delays completing, or if we terminate, any of our Phase 2b or Phase 3 trials, or if we are required to conduct additional clinical trials, such as a cardiovascular outcomes trial prior to approval, the commercial prospects for gemcabene may be harmed and our ability to generate product revenue will be delayed. If the FDA requires us to conduct a cardiovascular outcomes trial sooner than planned, we may not be able to identify and enroll the requisite number of patients in that trial. Even if we are successful in enrolling patients in a cardiovascular outcomes trial, we may not ultimately be able to demonstrate that lowering LDL-C levels using gemcabene provides patients with an incremental lowering of cardiovascular disease risks, and our failure to do so may delay or prejudice our ability to obtain FDA approval for gemcabene. Although the validity of lipid-lowering effects (including LDL-C reduction) as a surrogate endpoint for cardiovascular benefit continues to be debated in the medical community, given historical precedent and recent FDA guidance, our current development timeline for gemcabene does not contemplate the completion of a cardiovascular outcomes trial prior to approval. Such trial would be costly and time-consuming and, regardless of the outcome, would adversely affect our development timeline and financial condition.

We have not generated any revenue and may never be profitable.

Our ability to become profitable depends upon our ability to generate revenue. To date, we have not generated any revenue from our development stage product candidate, gemcabene, and we do not currently have any other products or product candidates. We do not know when, or if, we will generate any revenue. We do not expect to generate significant revenue unless or until we obtain marketing approval of, and commercialize, gemcabene. Our ability to generate revenue depends on a number of factors, including our ability to:

- successfully complete preclinical carcinogenicity studies to remove the partial clinical hold to allow us to complete longer term registration trials for marketing approval of gemcabene;
- obtain favorable results from and complete the clinical development of gemcabene for our planned indications, including successful completion of our Phase 2b and Phase 3 trials for these indications;
- submit an application to regulatory authorities for gemcabene and receive marketing approval in the United States and foreign countries;
- contract for the manufacture of commercial quantities of gemcabene, if approved, at acceptable cost levels;
- establish sales and marketing capabilities to effectively market and sell gemcabene, if approved, in the United States and the European Union, alone or with a pharmaceutical partner; and
- achieve market acceptance of gemcabene in the medical community and with third-party payors.

Even if gemcabene is approved for commercial sale in one or all of the initial indications that we are pursuing, it may not gain market acceptance or achieve commercial success. In addition, we anticipate incurring significant costs associated with commercializing gemcabene. Moreover, some of the indications we are targeting are small enough to be eligible for orphan drug designation, and our potential patient market is relatively smaller than other drugs, and therefore the price of gemcabene may need to be higher

than other drugs. We may not achieve profitability soon after generating product revenue, if ever, and may be unable to continue operations without continued funding.

If we fail to receive regulatory approval for any of our planned indications for gemcabene or fail to develop additional product candidates, our commercial opportunity will be limited.

We are initially focused on the development of gemcabene for our target indications. We are also exploring the utility of gemcabene for nonalcoholic steatohepatitis (NASH) and/or nonalcoholic fatty liver disease (NAFLD). However, we cannot assure you that we will be able to obtain regulatory approval of gemcabene for any indication, or successfully commercialize gemcabene, if approved. If we do not receive regulatory approval for, or successfully commercialize, gemcabene for one or more of our targeted or other indications, our commercial opportunity will be limited.

We may pursue clinical development of additional product candidates, including product candidates that we acquire or in-license. Acquiring, in-licensing, developing, obtaining regulatory approval for and commercializing additional product candidates will require substantial additional funding beyond the net proceeds of this offering and are prone to the risks of failure inherent in drug product development. We cannot assure you that we will be able to successfully advance any additional product candidates through the development process.

Even if we obtain FDA approval to market additional product candidates, we cannot assure you that any such product candidates will be successfully commercialized, widely accepted in the marketplace or more effective than other commercially available alternatives. If we are unable to successfully develop and commercialize additional product candidates, our commercial opportunity will be limited.

We depend on intellectual property licensed from Pfizer for gemcabene, and the termination of this license would harm our business.

Pfizer has granted us a worldwide exclusive license to make, use, sell, offer for sale and import the clinical product candidate gemcabene, along with certain intellectual property for the purposes of development and commercialization of gemcabene. We or Pfizer may terminate this license in the event of a material breach that remains uncured for 30 days from the date that the breaching party is provided with notice of such breach, provided that if such breach is capable of being cured, the cure period may be extended up to an additional 60 days, or immediately upon certain insolvency events relating to the other party. Pfizer may immediately terminate this license in the event that we, or any of our affiliates, consent, challenge, 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 this license. Additionally, Pfizer may revoke the license if we are unable to adequately commercialize gemcabene by April 2021. See "Business — Pfizer Licensing Terms" for additional information regarding our license agreement with Pfizer.

Disputes may arise between us 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 our 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;
- our 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 us and our partners.

Any disputes with Pfizer may prevent or impair our ability to maintain our current licensing arrangement. We depend on the intellectual property licensed from Pfizer to develop and commercialize gemcabene. Termination of our license agreement could result in the loss of significant rights and would harm our ability

to further develop and commercialize gemcabene. In addition, Pfizer has a non-exclusive, sub licensable, royalty-free right and license for non-commercial research or development purposes to intellectual property rights relating to gemcabene that are developed by us after the effective date of the license with Pfizer.

The development of gemcabene or pursuit of any future product candidate for broad patient populations will be more costly and commercial pricing for any approved indication would likely be lower.

Although we are initially pursuing development of gemcabene for the treatment of patients with HoFH, we believe that gemcabene may be useful for the treatment of elevated lipid and triglyceride levels in broader patient populations, including HeFH, ASCVD and SHTG. The Company is also exploring indications in NASH and/or NAFLD. Expanding our development and commercialization of gemcabene or any future product candidate in these or other broader patient populations would be more costly and take longer to complete and would be subject to development and commercialization risks that may not be applicable to HoFH orphan indication.

Specifically, this may involve clinical trials with larger numbers of patients possibly taking the drug for longer periods of time. In addition, we believe that the FDA and, in some cases, the European Medicines Agency (EMA) may require a clinical outcomes trial demonstrating a reduction in cardiovascular events either prior to or after the submission of an application for marketing approval for the broader LDL-C indications. Clinical outcomes trials are particularly expensive and time consuming to conduct because of the larger number of patients required to establish that the drug being tested has the desired effect. It may also be more difficult for us to demonstrate the desired outcomes in these trials than to achieve validated surrogate endpoints. In addition, in considering approval of gemcabene for broader patient populations with less severely elevated lipid levels, the FDA and other regulatory authorities may place greater emphasis on the side effect and risk profile of the drug in comparison to the drug's efficacy and potential clinical benefit than in smaller, more severely afflicted patient populations. These factors may make it more difficult for us to achieve marketing approvals of gemcabene for these broader patient populations.

Moreover, if we pursue and are able to successfully develop and obtain marketing approval of gemcabene and any future product candidate in broader patient populations, we likely will not be able to obtain the same pricing level that we expect to obtain for orphan indications. The pricing of some drugs intended for orphan populations is often related to the size of the patient population, with smaller patient populations often justifying higher prices. If the pricing is lower in broader patient populations, we may not be able to maintain higher pricing in the population of more severely afflicted patients. This would lead to a decrease in revenue from sales to more severely afflicted patients and could make it more difficult for us to achieve or maintain profitability.

We do not have drug research or discovery capabilities and will need to acquire or license product candidates from third parties to expand our product candidate pipeline.

We currently have no drug research or discovery capabilities. Accordingly, if we are to expand our product candidate pipeline beyond gemcabene, we will need to acquire or license product candidates from third parties. We will face significant competition in seeking to acquire or license promising product candidates. Many of our competitors for such promising product candidates may have significantly greater financial resources and more extensive experience in preclinical testing and clinical trials, obtaining regulatory approvals and manufacturing and marketing pharmaceutical products, and thus, may be a more attractive option to a potential licensor than us. If we are unable to acquire or license additional promising product candidates, we will not be able to expand our product candidate pipeline.

If we are able to acquire or license other product candidates, such license agreements will likely impose various obligations upon us, and our licensors may have the right to terminate the license thereunder in the event of a material breach or, in some cases, at will. A termination of future licenses could result in our loss of the right to use the licensed intellectual property, which could adversely affect our ability to develop and commercialize a future product candidate, if approved, as well as harm our competitive business position and our business prospects.

We may expend our limited resources to pursue a particular indication and fail to capitalize on indications that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we are currently focusing only on development programs that we identify for specific indications for gemcabene. As a result, we may forego or delay pursuit of opportunities for other indications, or with other potential product candidates that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs for specific indications or future product candidates may not yield any commercially viable product. If we do not accurately evaluate the commercial potential or target market for gemcabene, we may not gain approval or achieve market acceptance of that candidate, and our business and financial results will be harmed.

Risks Related to our Financial Position and Need for Additional Capital

We have incurred only losses since inception. We expect to incur losses for the foreseeable future and may never achieve or maintain profitability.

Since inception, we have incurred only operating losses. Our net losses were $0.3 million, $9.0 million and $2.1 million for the years ended December 31, 2014 and 2015 and the three months ended March 31, 2016, respectively. As of March 31, 2016, we had an accumulated deficit of $14.5 million. We have financed our operations primarily through a private placement of our preferred stock and the issuance of convertible debt securities. We have devoted substantially all of our financial resources and efforts on research and development, including clinical development of gemcabene. We expect that it will be a number of years, if ever, before we have a product candidate ready for commercialization. We expect to continue to incur significant expenses and increased operating losses for the foreseeable future.

To become and remain profitable, we must develop and eventually commercialize a product with market potential. This will require us 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 we may obtain regulatory approval and satisfying any post-marketing requirements. We are in the early stages of most of these activities. We may never succeed in these activities and, even if we do, we may never generate revenues that are significant or large enough to achieve profitability.

If we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would decrease the value of the company and could impair our ability to raise capital, maintain our research and development efforts, expand our business or continue our operations. A decline in the value of our company could also cause you to lose all or part of your investment.

Our recurring operating losses have raised substantial doubt regarding our ability to continue as a going concern.

Our recurring operating losses raise substantial doubt about our ability to continue as a going concern. As a result, for the fiscal year ended December 31, 2015, our independent registered public accounting firm has issued its report on our financial statements and has expressed substantial doubt about our ability to continue as a going concern. We have no current source of revenue to sustain our present activities, and we do not expect to generate revenue until and unless the FDA or other applicable regulatory authorities approve gemcabene and we successfully commercialize gemcabene. Accordingly, our ability to continue as a going concern will require us to obtain additional financing to fund our operations. Uncertainty surrounding our ability to continue as a going concern may make it more difficult for us to obtain financing for the continuation of our operations and could result in the loss of confidence by investors, suppliers, contractors and employees.

We will need substantial additional capital in the future. If additional capital is not available, we will have to delay, reduce or cease operations.

Although we believe that the net proceeds from this offering, together with cash on hand, will be sufficient to fund our operations for at least the next 24 months, we will need to raise additional capital to continue to fund the further development of gemcabene and our operations. Our future capital requirements may be substantial and will depend on many factors including:

- the scope, size, rate of progress, results and costs of researching and developing gemcabene and initiating and completing our preclinical studies and clinical trials;
- the cost, timing and outcome of our efforts to obtain marketing approval for gemcabene in the United States and other countries, including to fund the preparation and filing of an NDA with the FDA for gemcabene and to satisfy related FDA requirements and regulatory requirements in other countries;
- the number and characteristics of any additional product candidates we develop or acquire, if any;
- our ability to establish and maintain collaborations on favorable terms, if at all;
- the timing and amount of milestone and royalty payments;
- the amount of revenue, if any, from commercial sales, should any product candidate receive marketing approval;
- the costs associated with commercializing gemcabene or any future product candidates, if we receive marketing approval, including the cost and timing of developing sales and marketing capabilities or entering into strategic collaborations to market and sell gemcabene or any future product candidates;
- the cost of manufacturing gemcabene or any future product candidates and any product we successfully commercialize; and
- the costs associated with general corporate activities, such as the cost of filing, prosecuting and enforcing patent claims and making regulatory filings.

Changing circumstances may cause us to consume capital significantly faster than we currently anticipate. Because the outcome of any clinical trial is highly uncertain, we cannot reasonably estimate the actual amounts necessary to successfully complete the development, regulatory approval and commercialization of gemcabene and any future product candidates. Additional financing may not be available when we need it or may not be available on terms that are favorable to us. In addition, we may seek additional capital due to favorable market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans. If adequate funds are unavailable to us on a timely basis, or at all, we may not be able to continue the development of gemcabene or any future product candidate, or commercialize gemcabene or any future product candidate, if approved, unless we find a strategic partner.

Raising additional capital may cause dilution to our stockholders, including purchasers of common stock in this offering, restrict our operations or require us to relinquish rights to our technologies or product candidates.

Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity and debt financings as well as potential strategic collaborations and licensing arrangements. We do not have any committed external source of funds.

To the extent that we raise 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 common stockholder. Debt financing or preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends.

If we raise funds through strategic collaborations or marketing, distribution, or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or to grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market product

candidates that we would otherwise prefer to develop and market ourselves. This may reduce the value of our common stock.

In the past, we issued options to acquire common stock at prices significantly below the initial public offering price. Pursuant to our 2015 Plan, our management is authorized to grant stock options to our employees, directors and consultants. The aggregate number of shares of our common stock that may initially be reserved under the amended and restated 2015 Plan is 2,400,000 shares, with 574,800 shares remaining available for issuance following the grant of options to purchase an aggregate of 1,825,200 shares of common stock to certain officers, directors, employees and consultants in connection with this offering. The number of shares of our common stock reserved for issuance under the amended and restated 2015 Plan will automatically increase on January 1 of each year, beginning on January 1, 2017 and 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 our board of directors.

To the extent these outstanding options are ultimately exercised or the number of shares available for future grant each year are increased, investors purchasing common stock in this offering will sustain further dilution. See "Dilution" for a more detailed description of the dilution to new investors in the offering.

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 ongoing preclinical toxicology studies are complete, which may lead to a significant delay in the commencement of long term clinical trials by us 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 us from conducting clinical trials for gemcabene beyond six months in duration, and requires us to conduct two-year rat and mouse carcinogenicity studies before conducting trials of longer than six months. The FDA has issued these notices to all sponsors of product candidates with PPAR properties based on preclinical studies. We plan to complete our two-year rat and mouse carcinogenicity studies by the end of 2017, with draft reports issued soon after. Clinical trials may be delayed due to these clinical restrictions and additional oversight by the FDA. For example, if the results of the two-year rat and mouse carcinogenicity studies do not address FDA concerns related to the partial clinical hold, our Phase 3 long term safety exposure registration trials of longer than six months could be delayed. Also, the findings in the carcinogenicity studies could impact the NDA review, and, if approved, labeling and use of gemcabene.

Even if we receive marketing approval for gemcabene or any product candidate we may pursue in the future in the United States, we may never receive regulatory approval to market such product candidate outside of the United States.

In addition to the United States, we intend to seek regulatory approval to market gemcabene in Canada and Europe and potentially other markets. If we pursue additional product candidates in the future, we may seek regulatory approval of such product candidates outside the United States. In order to market any product outside of the United States, however, we must establish and comply with the numerous and varying safety, efficacy and other regulatory requirements of these other countries. Approval procedures vary among countries and can involve additional product candidate testing and additional administrative review periods. The time required to obtain approvals in other countries might differ from that required to obtain FDA approval. The marketing approval processes in other countries may include all of the risks detailed above regarding FDA approval in the United States as well as other risks. In particular, in many countries outside of the United States, products must receive pricing and reimbursement approval before the product can be commercialized. Obtaining this approval can result in substantial delays in bringing products to market in such countries. Marketing approval in one country does not ensure marketing approval in another, but a failure or delay in obtaining marketing approval in one country may have a negative effect on the regulatory process in others. Failure to obtain marketing approval in other countries or any delay or other setback in obtaining such approval would impair our ability to market gemcabene or any future product candidate in such foreign markets. Any such impairment would reduce the size of our potential market, which could have an adverse impact on our business, results of operations and prospects.

Even if we obtain marketing approval for gemcabene or any product candidate we may pursue in the future, such product candidate could be subject to post-marketing restrictions or withdrawal from the market, and we may be subject to substantial penalties if we fail to comply with regulatory requirements or experience unanticipated problems with a product candidate following approval.

Any product candidate for which we, or our future collaborators, obtain marketing approval in the future, as well as the manufacturing processes, post-approval studies and measures, labeling, advertising and promotional activities for such drug, among other things, 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, requirements relating to manufacturing, quality control, quality assurance and corresponding maintenance of records and documents, 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 drug may be marketed or to the conditions of approval, including the requirement to implement a REMS, which could include requirements for a restricted distribution system.

The FDA may also impose requirements for costly post-marketing studies or clinical trials and surveillance to monitor the safety or efficacy of a product candidate. The FDA and other agencies, including the Department of Justice, closely regulate and monitor the post-approval marketing and promotion of drugs to ensure that they are manufactured, marketed and distributed 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 we, or our future collaborators, do not market a product candidate for which we, or they, receive marketing approval for only their approved indications, we, or they, may be subject to warnings or enforcement action for off-label promotion. Violation of the Federal Food, Drug, and Cosmetic Act (FDC Act) and other statutes, including the False Claims Act, relating to the promotion and advertising of prescription drugs may lead to investigations or allegations of violations of federal and state health care fraud and abuse laws and state consumer protection laws.

In addition, later discovery of previously unknown AEs or other problems with our product candidate or its manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may yield various results, including:

- litigation involving patients taking our drug;
- restrictions on such drugs, manufacturers or manufacturing processes;
- restrictions on the labeling or marketing of a drug;
- restrictions on drug distribution or use;
- requirements to conduct post-marketing studies or clinical trials;
- warning letters or untitled letters;
- withdrawal of the drugs from the market;
- refusal to approve pending applications or supplements to approved applications that we submit;
- product recall or public notification or medical product safety alerts to healthcare professionals;
- fines, restitution or disgorgement of profits or revenues;
- suspension or withdrawal of marketing approvals;
- damage to relationships with any potential collaborators;
- unfavorable press coverage and damage to our reputation;
- refusal to permit the import or export of drugs;
- product seizure; or
- injunctions or the imposition of civil or criminal penalties.

We may seek to avail ourselves of mechanisms to expedite the development or approval of gemcabene or any other product candidate we may pursue in the future, such as fast track designation, but such mechanisms may not actually lead to a faster development or regulatory review or approval process.

We may seek fast track designation, priority review, or accelerated approval for gemcabene or any other product candidate we 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 we believe a particular product candidate is eligible for any such mechanism, we cannot assure you that the FDA would decide to grant it. Even if we do obtain fast track or priority review designation or pursue an accelerated approval pathway, we may not experience a faster 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 our 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 our late stage clinical trials, we may seek a breakthrough therapy designation for gemcabene or any other product candidate we 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 we believe a product candidate meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. We cannot be sure that our 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 candidate qualifies as a breakthrough therapy, the FDA may later decide that the product no longer meets the conditions for qualification or decide that the time period for FDA review or approval will not be shortened.

Recently-enacted and future legislation may increase the difficulty and cost for us and our future collaborators to obtain marketing approval of our 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 our ability, or the ability of our future collaborators, to profitably sell any drug for which we, or they, obtain marketing approval. We expect 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 we, or our 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 we expect there will be additional challenges and amendments to 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 we 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 us from being able to generate revenue, attain profitability or commercialize our drugs.

Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical products. We 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 us and our 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 our 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, we, or our future collaborators, may be required to conduct a clinical trial that compares the cost-effectiveness of our drug to other available therapies. If reimbursement of our drug is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business could be harmed.

Our 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 us 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 we obtain marketing approval. Our current and future arrangements with third-party payors and customers may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we market, sell and distribute any product candidate for which we obtain 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 our 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 our 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 our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we 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 our operations. If any of the physicians or other providers or entities with whom we expect 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 we are successful in defending against any such actions that may be brought against us, our business may be impaired.

We are 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 our ability to compete in domestic and international markets. We can face criminal liability and other serious consequences for violations which can harm our business.

We are 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 we conduct 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. We may engage third parties for clinical trials outside of the United States, to sell our products abroad once we enter a commercialization phase, and/or to obtain necessary permits, licenses, patent registrations, and other regulatory approvals. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. We can be held liable for the corrupt or other illegal activities of our employees, agents, contractors, and other partners, even if we do not explicitly authorize or have actual knowledge of such activities. Our 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.

Our 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 our business.

We are 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 us. 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 our reputation. It is not always possible to identify and deter employee misconduct,

and the precautions we take to detect and prevent this activity may be ineffective in controlling unknown or unmanaged risks or losses or in protecting us 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 us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our 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 our operations.

The FDA and other regulatory agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses. If we are found to have improperly promoted off-label uses, we 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 we receive 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 we are found to have promoted such off-label uses, we 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 we cannot successfully manage the promotion of gemcabene or any future product candidate, if approved, we could become subject to significant liability, which would adversely affect our business and financial condition.

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

We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than we do.

The development and commercialization of new drug products is highly competitive. We expect to face competition with respect to gemcabene, if approved, and will face competition with respect to any product candidates that we 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. Our success will depend, in part, on our ability to obtain a share of the market for our 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 our patents, pending patent applications or other proprietary rights which could adversely affect our 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; and their generic version of these drugs;

- prescription fish oils, such as Lovaza marketed by GlaxoSmithKline, Epanova marketed by AstraZeneca and Vascepa marketed by Amarin Corporation plc; and

- PCSK9 inhibitors, such as Praluent, developed by Sanofi-Aventis U.S. LLC, and Regeneron Pharmaceuticals, Inc. and Repatha marketed by Amgen Inc.

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, we believe the current therapies in development that would compete with gemcabene include:

- for HoFH, MBX-8025 developed by CymaBay Therapeutics, Inc. and RGEN-1500 being developed by Regeneron 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; and PCSK9 inhibitors, such as ALN-PCSsc being developed by The Medicines Company and Alnylam Pharmaceuticals, Inc. and bococizumab being developed by Pfizer; and

- for SHTG, ISIS-APOCIII antisense being developed by Ionis Pharmaceuticals, Inc. (formerly Isis Pharmaceuticals, Inc.).

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

Many of our 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 we do. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our 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 us 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, our programs.

We lack experience commercializing products, which may have an adverse effect on our business.

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

If we are 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 we may pursue, we may not be successful in commercializing such product candidate if and when approved.

We do not have a global sales or marketing infrastructure and have 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 we retain sales and marketing responsibilities, we 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 our 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 we recruit a sales force and establish marketing capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly, and our investment would be lost if we cannot retain or reposition our sales and marketing personnel.

Factors that may inhibit our efforts to commercialize gemcabene or any future product candidate on our own include:

- our 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 our product candidate;
- the lack of complementary products to be offered by sales personnel, which may put us 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 we enter into arrangements with third parties to perform sales, marketing and distribution services, our product revenues or the profitability of these product revenues to us are likely to be lower than if we were to market and sell a product that we develop ourselves. In addition, we 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 us. We 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 we do not establish sales and marketing capabilities successfully, either on our own or in collaboration with third parties, we 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, we may not generate significant product revenues and we 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 our 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 our product together with other medications;
- interactions of our product with other medicines patients are taking;

- § inability of certain types of patients to take our 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 our sales and marketing strategies;
- § our 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;
- § our 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 our product candidates appropriate periods of data exclusivity before approving generic versions of our products, the sales of our 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 our product candidates as NCEs and, therefore, afford them five years of NCE data exclusivity if they are approved. If any product we develop 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 we still have patent protection for our product.

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

Even if we are able to commercialize gemcabene or any 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 our business.

Our 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. We cannot be sure that coverage will be available for any product candidate that we commercialize and, if coverage is available, whether the level of reimbursement will be adequate. Assuming we obtain 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 our products. Therefore, coverage and adequate reimbursement is critical to new product acceptance. If reimbursement is not available or is available only to limited levels, we may not be able to successfully commercialize any product candidate for which we obtain 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 our costs, including research, development, manufacture, sale and distribution. Interim reimbursement levels for a new product, if applicable, may also not be sufficient to cover our 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 us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance.

Our inability to promptly obtain coverage and profitable payment rates from both government-funded and private payors for any approved products that we develop could have an adverse effect on our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

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

We face an inherent risk of product liability exposure related to the testing of our product candidate in human clinical trials and will face an even greater risk if we commercially sell any products that we may develop. Product liability claims might be brought against us 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, we 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 we cannot successfully defend ourselves against claims that our product candidate caused injuries, we could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any product candidate that we are developing;
- injury to our 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 our primary business;
- loss of revenue; and
- the inability to commercialize any product candidate that we may develop.

We do not yet have product liability or clinical trial insurance coverage, and any coverage that we do obtain may not be adequate to cover all liabilities that we may incur. We may need to increase our insurance coverage as we expand clinical trials and if we successfully commercialize gemcabene or any other product candidate we may pursue in the future. Insurance coverage is increasingly expensive, and we 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 we or our third-party manufacturers fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have an adverse effect on the success of our business.

Our research and development activities involve the controlled use of potentially hazardous substances, including chemical and biological materials, by ourselves and our third-party manufacturers. Our 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 we believe that our manufacturers' procedures for using, handling, storing and disposing of these materials comply with legally prescribed standards, we cannot completely eliminate the risk of contamination or injury resulting from medical or hazardous materials. As a result of any such contamination or injury, we may incur liability or local, city, state or federal authorities may curtail the use of these materials and interrupt our business operations. In the event of an accident, we could be held liable for damages or penalized with fines, and the liability could exceed our resources. We do not have any insurance for liabilities arising from medical or hazardous materials. Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our 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 our research, development and production efforts, which could harm our business, prospects, financial condition or results of 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 our operating results.

We 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 we receive for any product we may develop and adversely affect our future revenues and prospects for profitability.

Risks Related to our Dependence on Third Parties

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

We will rely on CROs to conduct our preclinical studies and clinical trials for any product candidate, including our Phase 2b and Phase 3 trials for gemcabene. As a result, we 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;
- undergo changes in priorities or become financially distressed; or
- form relationships with other entities, some of which may be our competitors.

These factors may adversely affect the willingness or ability of third parties to conduct our clinical trials and may subject us to unexpected cost increases that are beyond our control.

Moreover, the FDA requires us 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. Our reliance on third parties that we do not control does not relieve us of these responsibilities and requirements.

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

secure regulatory approval of gemcabene and preclude our ability to commercialize gemcabene, thereby limiting or preventing our ability to generate revenue from its sales.

We rely completely on third parties to supply and manufacture our preclinical and clinical drug supplies for gemcabene, and we intend to rely on third parties to produce commercial supplies of gemcabene and preclinical, clinical and commercial supplies of any future product candidate.

We do not currently have, nor do we plan to acquire, the infrastructure or capability to internally manufacture our clinical drug supply of gemcabene, or any future product candidates, for use in the conduct of our preclinical studies and clinical trials, and we lack 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 our 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 our 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.

We do not control the manufacturing process of, and are completely dependent on, our contract manufacturers to comply with current good manufacturing practices (cGMP) for manufacture of both active drug substances and finished drug products. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or applicable foreign regulatory agencies, we will not be able to secure and/or maintain regulatory approval for our products. In addition, we have no direct control over our 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 our 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 if it withdraws its approval in the future, we may need to find alternative manufacturing facilities, which would adversely impact our ability to develop, obtain regulatory approval for or market gemcabene or such future product candidates. Furthermore, all of our contract manufacturers are engaged with other companies to supply and/or manufacture materials or products for such companies, which exposes our manufacturers to regulatory and sourcing risks for the production of such materials and products. To the extent practicable, we attempt 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.

We have relied upon third-party manufacturers for the manufacture of our product candidate for preclinical and clinical testing purposes and intend to continue to do so in the future, including for commercial purposes. If our third party manufacturers are unable to supply drug substance and/or drug product on a commercial basis, we may not be able to successfully produce and market gemcabene, if approved, or could be delayed in doing so. For instance, we rely on one supplier for the drug substance for gemcabene. The manufacturer of the drug substance for gemcabene is in the process of manufacturing 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. We 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 we are unable to demonstrate such equivalence, we may be required to conduct additional preclinical and/or clinical testing of our product candidate.

These and other problems with any manufacturer may lead us to seek to terminate our 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 our research and development activities. If we must replace any manufacturer, our research and development activities may have to be suspended until we find another manufacturer that offers comparable services. The time that it takes us to find alternative organizations may cause a delay in the development and commercialization of gemcabene or any future product candidate.

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

We may form or seek strategic alliances, create joint ventures or collaborations or enter into additional licensing arrangements with third parties that we believe will complement or augment our development and commercialization efforts with respect to gemcabene and any future product candidates that we may develop. Any of these relationships may require us to incur non-recurring and other charges, increase our near and long-term expenditures, issue securities that dilute our existing stockholders or disrupt our management and business. Our likely collaborators include large and mid-size pharmaceutical companies, regional and national pharmaceutical companies and biotechnology companies. If we enter into any such arrangements with any third parties, we will likely have limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of gemcabene or any future product candidate. Our ability to generate revenues from these arrangements will depend on our collaborators' abilities to successfully perform the functions assigned to them in these arrangements. We cannot be certain that, following a strategic transaction or license, we 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 us:

- § 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 our 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 than ours;
- § 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 our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our proprietary information or expose us to potential litigation;
- § collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability;

- disputes may arise between the collaborators and us that result in the delay or termination of the research, development or commercialization of our product candidate or that result in costly litigation or arbitration that diverts management attention and resources;
- we may lose certain valuable rights under circumstances identified in our collaborations, including if we undergo 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 our discoveries and use this knowledge to compete with us 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 our collaborations could adversely affect our attractiveness to future collaborators or acquirers;
- collaboration agreements may not lead to development or commercialization of our product candidate in the most efficient manner or at all. If a present or future collaborator of ours were to be involved in a business combination, the continued pursuit and emphasis on our 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 our sales of such product candidate, if approved, may be limited, which would have an adverse effect on our operating results and financial condition.

If we are not able to establish new collaborations on commercially reasonable terms, we may have to alter our development and commercialization plans.

We face significant competition in attracting collaborators. Whether we reach a definitive agreement for collaboration will depend, among other things, upon our 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 our 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 us.

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 our product candidate, if approved. The milestone and royalty revenue that we may receive under these collaborations will depend upon our collaborators' ability to successfully develop, introduce, market and sell new our product candidate, if approved. In addition, collaborators may decide to enter into arrangements with third parties to commercialize products developed under collaborations related to our product candidate, which could reduce the milestone and royalty revenue received, if any.

We 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.

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

Risks Related to our Intellectual Property

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

Our commercial success will depend in part on our success obtaining and maintaining issued patents and other intellectual property rights in the United States and elsewhere and protecting our proprietary technology. If we do not adequately protect our intellectual property and proprietary technology, competitors may be able to use our technologies and erode or negate any competitive advantage we may have, which could harm our business and ability to achieve profitability.

We licensed patents relating to our current product candidate, gemcabene, from Pfizer. Pursuant to the license agreement, we are responsible for filing, prosecuting and maintaining the patent rights in Pfizer's name at our own cost and expense. In connection with this obligation, we are granted the first right to control the enforcement of the license patents against any third-party infringement actions. Risks related to our Pfizer license are discussed elsewhere in this "Risk Factors" section under "*We depend on intellectual property licensed from Pfizer for gemcabene, and the termination of this license would harm our business.*" The termination of this license could result in the loss of significant rights, which would harm our business.

As of May 2, 2016, our patent estate, including patents we own or license from third parties, on a worldwide basis, included four issued U.S. patents and eight pending U.S. patent applications and 23 issued patents in foreign jurisdictions including Canada, France, Germany, Great Britain, Ireland, Italy, Mexico and Spain and 15 pending patent applications in foreign jurisdictions including Australia, Canada, China, Europe, Hong Kong, Japan and Mexico. Our worldwide patents and pending applications all relate to our product candidate, gemcabene. Our patents claiming the gemcabene composition of matter generically, which were in-licensed from Pfizer, have all expired; however, our clinical formulation comprises a specific calcium salt crystal form of gemcabene, which form is claimed in U.S. Patent Number 6,861,555. This patent, which was in-licensed from Pfizer, is expected to expire in 2021, and may be eligible for a patent term extension period of up to five years. Our current patent estate includes four 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 using a statin-gemcabene combination for treating hyperlipidemia, angina pectoris and atherosclerosis. U.S. Patent Number 8,557,835 is expected to expire in 2021, absent any patent term extension, and corresponding foreign patents are expected to expire in 2018, absent any adjustment or extension. Additionally, U.S. Patent Number 8,846,761 and U.S. Patent Application Number 14/370,722, are owned by us. 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, absent any patent term extension. Any foreign patent in this family that may issue is expected to expire in 2031, absent any patent term extension. U.S.

Patent Application Number 14/370,722, 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 Australia, Canada, China, Europe, Japan and Mexico. Any patent that may issue in this family, absent any patent term adjustment or extension, is expected to expire in 2033.

In 2015, we filed two new provisional patent applications, one for methods of treatment of mixed dyslipidemia using gemcabene in combination with statins and treatment of NASH using gemcabene as monotherapy (U.S. Provisional Patent Application Number 62/252,195), and the other relating to fixed dose combinations and modified release formulations of gemcabene and statins (U.S. Provisional Patent Application Number 62/252,147), as well as two non-provisional patent applications on methods of large scale manufacturing for making dicarboxyalkyl ethers (US Application Number 14/942,765 and corresponding PCT application Number PCT/US2015/060917). The two provisional applications, if issued, are expected to expire in 2036. The two non-provisional applications, if issued, are expected to expire in 2035. As of May 2, 2016, we filed four new provisional patent applications: U.S. Provisional Patent Application Numbers 62/295,292, 62/300,393, 63/30,0415 and 62/314,597.

The patent prosecution process is expensive and time-consuming, and we and our 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 we or our 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. Our and our 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.

We cannot assure you that any of our patents have, or that any of our 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 our approach, and may have filed or may file patent applications and may have received or may receive patents that overlap or conflict with our patent applications, either by claiming the same methods or formulations or by claiming subject matter that could dominate our patent position. The patent positions of biotechnology and pharmaceutical companies, including our patent position, involve complex legal and factual questions, and, therefore, the issuance, scope, validity and enforceability of any patent claims that we 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 we 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 us, which in turn could affect our 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 us with adequate proprietary protection or competitive advantages against competitors with similar products. Competitors may also be able to design around our patents. Other parties may develop and obtain patent protection for more effective technologies, designs or methods. We 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 our proprietary rights to the same extent as the laws of the United States, and we may encounter significant problems in protecting our proprietary rights in these countries. If these developments were to occur, they could have a material adverse effect on our sales.

Our ability to enforce our patent rights depends on our 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 our patent rights, if any, even if we were to prevail, could be costly and time-consuming and would divert the attention of our management and key personnel from our business operations. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded if we were to prevail may not be commercially meaningful.

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

The degree of future protection for our proprietary rights is uncertain, and we cannot ensure that:

- § any of our patents, or any of our pending patent applications, if issued, will include claims having a scope sufficient to protect gemcabene;
- § any of our pending patent applications will result in issued patents;
- § we will be able to successfully commercialize gemcabene or any future product candidate, if approved, before our relevant patents expire;
- § we were the first to make the inventions covered by each of our patents and pending patent applications;
- § we were the first to file patent applications for these inventions;
- § others will not develop similar or alternative technologies that do not infringe our patents;
- § any of our patents will be valid and enforceable;
- § any patents issued to us will provide a basis for an exclusive market for our commercially viable products, will provide us with any competitive advantages or will not be challenged by third parties;
- § we will develop additional proprietary technologies or product candidates that are separately patentable; or
- § that our 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 we can market a product candidate under patent protection is limited, and our patent may expire before we obtain such approval. Without patent protection for gemcabene or any future product candidates, we may be open to competition from generic versions of our product candidates, which may affect the profitability of our product candidates.

If we do not obtain protection under the Hatch-Waxman Act and similar foreign legislation by extending the patent terms and obtaining data exclusivity for our product candidate, our 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 our 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. Our basic U.S. composition of matter patent for gemcabene has expired. We plan to seek patent term extension for one of our patents related to gemcabene. However, we 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 we request. If we are unable to obtain patent term extension or the term of any such extension is less than we request, our revenue could be reduced, possibly materially.

In addition, we believe 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 we are not able to gain or exploit the period of data exclusivity, we may face significant competitive threats to our commercialization of gemcabene from other manufacturers, including the manufacturers of generic alternatives. Further, even if our compound is considered to be a NCE and we are 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 benefit of our data.

If we fail to maintain orphan drug exclusivity for gemcabene for HoFH, we will have to rely on data and marketing exclusivity for HoFH that is not based on an orphan drug designation, if any, and on our intellectual property rights.

As part of our business strategy, in the United States we have obtained orphan drug designation for gemcabene for the treatment of HoFH. We intend to submit an application to the FDA for orphan drug designation for gemcabene for the treatment of severe hypertriglyceridemia above 750 mg/dL. 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 we are 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 our ability to protect gemcabene and any product candidate we 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 us could therefore be awarded a patent covering an invention of ours even if we had made the invention before it was made by the third party. This will require us to be cognizant going forward of the time from invention to filing of a patent application, but circumstances could prevent us from promptly filing patent applications on our 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 our 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 our 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 our patent applications and the enforcement or defense of our 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 Coropration 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 our 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 our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

We may not be able to protect or practice our intellectual property rights throughout the world.

In jurisdictions where we have not obtained patent protection, competitors may use our intellectual property to develop their own products and further, may export otherwise infringing products to territories where we

have 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 we do not have issued or granted patents or where our 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 us to prevent the infringement of our patents or marketing of competing products in violation of our proprietary rights generally in certain jurisdictions. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our 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 we, or our licensors, encounter difficulties in protecting, or are otherwise precluded from effectively protecting, the intellectual property rights important for our business in such jurisdictions, the value of these rights may be diminished and we 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 we, or any of our licensors, are forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position in the relevant jurisdiction may be impaired and our business and results of operations may be adversely affected.

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

Competitors may infringe our patents and other intellectual property rights. To counter infringement or unauthorized use, we 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 a patent of ours is invalid or unenforceable, or may refuse to stop the other party from using the technology on the grounds that our patents do not cover the technology in question. An adverse result in any litigation proceeding could put one or more of our 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 our confidential information could be compromised by disclosure during this type of litigation. Moreover, there can be no assurance that we 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 our management and other employees. We may not be able to prevent, alone or with our collaborators, misappropriation of our 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 our common stock.

Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, the outcome of which would be uncertain and could have an adverse effect on the success of our business.

Our commercial success depends upon our ability and the ability of our collaborators to develop, manufacture, market and sell gemcabene and any other product candidate we may pursue in the future and use our 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. We may in the future become party to, or threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to our 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 us based on existing patents or patents that may be granted in the future. If we are found to infringe a third party's intellectual property rights, we could be required to obtain a license from such third party to continue developing and marketing our medicines and technology. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us. We could be forced, including by court order, to cease developing and commercializing the infringing technology or medicine. In addition, we could be found liable for substantial monetary damages, potentially including treble damages and attorneys' fees, if we are found to have willfully infringed. A finding of infringement could prevent us from commercializing a product candidate or force us to cease some of our business operations, which could harm our business. Alternatively, we may need to redesign our infringing products, which may be impossible or require substantial time and monetary expenditure. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business.

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

We may be subject to damages resulting from claims that our employees or we have wrongfully used or disclosed alleged trade secrets of their former employers.

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

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

We may rely upon trade secrets, know-how and continuing technological innovation to develop and maintain our competitive position. However, trade secrets are difficult to protect. We rely in part on confidentiality agreements with our employees, consultants, outside scientific collaborators, sponsored researchers, contract manufacturers, vendors and other advisors to protect our 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, we cannot guarantee that we have executed these agreements with each party that may have or have had access to trade secrets.

Moreover, because we acquired certain rights to gemcabene from Pfizer, we 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 we have executed such an agreement may breach that agreement and disclose our proprietary information, including our trade secrets, and we 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 our trade secrets were to be lawfully obtained or independently developed by a competitor, we 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 us. If any of our trade secrets were to be disclosed to or independently developed by a competitor or other third-party, our competitive position would be harmed.

We have filed U.S. applications for certain of our trademarks, but we have not yet obtained registration of any of our trademarks.

We have filed U.S. applications for three trademarks, "Gemphire", the Gemphire logo and "Advancing a class on top of statins", but we have not yet obtained registration of any of our trademarks in the United States or other countries. If we do not secure and maintain registrations for our trademarks, we may encounter more difficulty in enforcing them against third parties than we otherwise would, which could affect our business. We have also not yet registered trademarks for any product candidate in any jurisdiction. When we file 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, we may receive rejections. We are given an opportunity to respond to those rejections, but we 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 our trademarks, and our trademarks may not survive such proceedings.

In addition, any proprietary name we propose to use with gemcabene or any future product candidate in the United States must be approved by the FDA, regardless of whether we have 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, we 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 we register any of our trademarks, our trademarks or trade names may be challenged, infringed, circumvented or declared generic or determined to infringe on other marks. We may not be able to protect our rights to these trademarks and trade names or may be forced to stop using these names, which we need for name recognition by potential partners or customers in our markets of interest. If we are unable to establish name recognition based on our trademarks and trade names, we may not be able to compete effectively and our business may be adversely affected.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and our 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, our competitors might be able to enter the market, which would have an adverse effect on our business.

Risks Related to Employee Matters and Managing Growth

We are dependent on our key personnel, and if we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

We are highly dependent on our management, scientific and medical personnel, including Dr. Charles L. Bisgaier, our co-founder, Chairman of our board of directors and Chief Scientific Officer, and Mina Sooch, our President, Chief Executive Officer, Treasurer and director. We have entered into employment agreements with our executive officers, but any employee may terminate his or her employment with us. The loss of the services of either Dr. Bisgaier or Ms. Sooch, any of our executive officers, other key employees or consultants and other scientific and medical advisors in the foreseeable future, might impede the achievement of our research, development and commercialization objectives. We rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our development and commercialization strategy. Our consultants and advisors may be employed by employers other than us and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. Recruiting and retaining qualified scientific personnel and business and commercial personnel will also be critical to our success. We 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. We also experience 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.

We will need to develop and expand our company, and we may encounter difficulties in managing this development and expansion, which could disrupt our operations.

As of May 2, 2016, we had eight full-time employees, and we expect to increase our number of employees and the scope of our operations as we further the clinical development of gemcabene and become a public company. To manage our anticipated development and expansion, we must continue to implement and improve our managerial, operational and financial systems, expand our facilities and continue to recruit and train additional qualified personnel. Also, our 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 our limited resources, we may not be able to effectively manage the expansion of our operations or recruit and train additional qualified personnel. This may result in weaknesses in our infrastructure, and give rise to operational mistakes, loss of business opportunities, loss of employees and reduced productivity among remaining employees. The physical expansion of our operations may lead to significant costs and may divert financial resources from other projects, such as the development of gemcabene. If our management is unable to effectively manage our expected development and expansion, our expenses may increase more than expected, our ability to generate or increase our revenue could be reduced and we may not be able to implement our business strategy. Our future financial performance and our ability to commercialize gemcabene or any future product candidate, if approved, and compete effectively will depend, in part, on our ability to effectively manage the future development and expansion of our company.

A variety of risks associated with operating internationally for us and our collaborators could adversely affect our business.

In addition to our U.S. operations, we 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 our business. We plan to conduct clinical trials outside of the United States. We are 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 we are 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 our 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.

Our business and operations would suffer in the event of system failures or unplanned events.

Despite the implementation of security measures, our internal computer systems and those of our 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 we are 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 our operations, it could result in a material disruption of our development programs and our business operations. For example, the loss of clinical trial data from completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our 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, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the further development and commercialization of our 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 us being unable to fully utilize the facilities, may have an adverse effect on our ability to operate our business, particularly on a daily basis, and have significant negative consequences on our financial and operating conditions. Loss of access to these facilities may result in increased costs, delays in the development of our product candidates or interruption of our business operations.

Risks Related to our Common Stock and this Offering

The price of our common stock may be volatile and fluctuate substantially, which could result in substantial losses for purchasers of our common stock in this offering.

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

- adverse results or delays in preclinical studies, clinical trials, regulatory decisions or the development status of gemcabene or any product candidates we may pursue in the future;
- 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;
- changes in applicable laws, rules or regulations;
- disputes with Pfizer regarding our licensed rights to gemcabene;
- adverse developments concerning our manufacturers, suppliers, collaborators and other third parties;
- our failure to commercialize gemcabene or any product candidates we may pursue in the future;
- the success of competitive drugs;
- additions or departures of key scientific or management personnel;
- unanticipated safety concerns related to the use of gemcabene or any product candidates we may pursue in the future;
- our announcements or our 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 our target markets;
- our failure, or companies perceived to be similar to us, to meet external expectations or management guidance;
- fluctuations in our quarterly financial results or the quarterly financial results of companies perceived to be similar to us;
- publication of research reports about us or our 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 we conduct our business;
- changes in our capital structure or dividend policy, future issuances of securities, sales of large blocks of common stock by our stockholders or our incurrence of additional debt;
- trading volume of our common stock;
- changes in accounting practices and ineffectiveness of our 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 our 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 our common stock, regardless of our actual operating performance. In addition, the initial public offering price for our common stock will be determined through our negotiations with the underwriters, and may not bear any relationship to the market price at which our common stock will trade after this offering or to any other established criteria of the value of our business. If the market price of our common stock after this offering does not exceed the initial public offering price or declines, you may not realize any return on your investment in us and may lose some or all of your investment. 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 our business, operating results or financial condition.

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

Provisions in our corporate charter and our bylaws that will become effective upon the closing of this offering may discourage, delay or prevent a merger, acquisition or other change in control of us that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock. In addition, because our board of directors is responsible for appointing the members of our management team, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. 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 our directors to be changed only by resolution of our board of directors;
- § limit the manner in which 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 our board of directors;
- § require that stockholder actions must be effected at a duly called stockholder meeting and prohibit actions by our stockholders by written consent;
- § prohibit stockholders from calling special meetings;
- § authorize our board of directors 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 our board of directors; and
- § require the approval of the holders of at least two-thirds of the votes that all our stockholders would be entitled to cast to amend or repeal certain provisions of our charter or bylaws.

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

If you purchase our common stock in this offering, you will incur immediate and substantial dilution in the book value of your shares.

The initial public offering price is substantially higher than the net tangible book value per share of our common stock. As a result, investors purchasing common stock in this offering will suffer immediate and substantial dilution in the net tangible book value of the common stock purchased. Assuming an initial public offering price of $12.00 per share, the midpoint of the estimated price range set forth on the cover of this prospectus, purchasers of common stock in this offering will experience immediate dilution of approximately $7.73 per share. In addition, investors purchasing common stock in this offering will contribute approximately 82.1% of the total amount invested by stockholders since inception but will only own approximately 40.8% of the shares of common stock outstanding. For a further description of the dilution that you will experience immediately after this offering, see "Dilution."

We do not know whether an active, liquid and orderly trading market will develop for our common stock or what the market price of our common stock will be and as a result it may be difficult for you to sell your shares of our common stock.

Prior to this offering there has been no public market for shares of our common stock. Although we plan to apply to have our common stock listed on NASDAQ, an active trading market for our shares may never develop or be sustained following this offering. You may not be able to sell your shares quickly or at the market price if trading in shares of our common stock is not active. The initial public offering price for our common stock was determined through negotiations with the underwriters, and the negotiated price may not be indicative of the market price of the common stock after the offering. Furthermore, the purchase of shares of our common stock in this offering by our affiliates through the directed share program or otherwise, would reduce the available public float for our common stock. As a result, any purchase of shares of our common stock by affiliates may reduce the liquidity of our common stock relative to what it would have been if such shares were purchased by non-affiliates. As a result of these and other factors, you may be unable to resell your shares of our common stock at or above the initial public offering price. Further, an inactive market may also impair our ability to raise capital by selling shares of our common stock and may impair our ability to enter into strategic partnerships or acquire companies or products by using our shares of common stock as consideration.

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

The trading market for our common stock will rely in part on the research and reports that industry or financial analysts publish about us or our business. We may never obtain research coverage by industry or financial analysts. If no or few analysts commence coverage of us, the trading price of our stock would likely decrease.

Even if we do obtain analyst coverage, if one or more of the analysts covering our business downgrade their evaluations of our stock or publish inaccurate or unfavorable research about our business, the price of our stock could decline. If one or more of these analysts cease to cover our stock, we could lose visibility in the market for our stock, which in turn could cause our stock price and trading volume to decline.

Our executive officers, directors, principal stockholders and their affiliates will continue to exercise significant control over our company after this offering, which will limit your ability to influence corporate matters and could delay or prevent a change in corporate control.

As of May 2, 2016, our officers, directors, five percent or greater stockholders and their respective affiliates directly or indirectly held in the aggregate approximately 83.0% of our outstanding voting stock and, immediately following the closing of this offering, disregarding any shares of common stock that they purchase in this offering or receive in connection with equity awards granted in connection with this offering, our officers, directors, five percent or greater stockholders and their respective affiliates will have

beneficial ownership, in the aggregate, of approximately 45.3% of our outstanding common stock, assuming no exercise of the underwriters' option to acquire additional common stock in this offering. If certain of our existing stockholders and their affiliated entities purchase all of the shares they have indicated an interest in purchasing in this offering, then our officers, directors, five percent or greater stockholders and their respective affiliates will beneficially own, in the aggregate, approximately 50.4% of our outstanding common stock immediately following the closing of this offering, based on an assumed initial public offering price of $12.00 per share, the mid-point of the estimated price range set forth on the cover page of this prospectus. In addition, on April 25 and 27, and June 9, 2016, our Compensation Committee approved the award of options to purchase an aggregate of 1,825,200 shares of common stock with a per share exercise price equal to the initial public offering price, in each case pursuant to the 2015 Plan, to be granted to certain officers, directors, employees and consultants in connection with this offering.

At our request, the underwriters have reserved up to 10% of the shares of our common stock offered by this prospectus for sale, at the initial public offering price, to our directors, officers, employees and other individuals associated with us and members of their respective families. To the extent shares of common stock are purchased by our officers, directors, five percent or greater stockholders and their respective affiliates pursuant to the directed share program or otherwise in this offering, the percentage of our outstanding voting stock held by such persons immediately following the closing of this offering will increase.

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

For more information regarding the ownership of our outstanding common stock by our executive officers, directors, principal stockholders and their affiliates see "Principal Stockholders."

We are an "emerging growth company," and we cannot be certain if the reduced reporting requirements applicable to emerging growth companies will make our common stock less attractive to investors.

We are an "emerging growth company," as defined in the JOBS Act. For as long as we continue to be an emerging growth company, we 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 this prospectus and our 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. We have irrevocably elected not to avail ourselves 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.

We 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 this offering, (b) in which we have total annual gross revenue of at least $1 billion, or (c) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds $700 million as of the prior June 30th, and (2) the date on which we have issued more than $1 billion in non-convertible debt during the prior three-year period.

Even after we no longer qualify as an emerging growth company, we may still qualify as a "smaller reporting company," which would allow us to take advantage of many of the same exemptions from disclosure requirements including exemption from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements.

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

We will incur increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives.

As a public company, and particularly after we are no longer an "emerging growth company," we will incur significant legal, accounting and other expenses that we did not incur as a private company. For example, we will be subject to the reporting requirements of the Exchange Act, which will require, among other things, that we file with the SEC annual, quarterly and current reports with respect to our business and financial condition. In addition, the Sarbanes-Oxley Act and rules subsequently implemented by the SEC and NASDAQ have imposed various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel will need to devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costly. For example, we expect that these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance.

Further, there are significant corporate governance and executive compensation related provisions in the Dodd-Frank Wall Street Reform and Consumer Protection Act that require the SEC to adopt additional rules and regulations in these areas such as "say on pay" and proxy access. Recent legislation permits emerging growth companies to implement many of these requirements over a longer period and up to five years from the pricing of this offering. We intend to take advantage of this new legislation but cannot guarantee that we will not be required to implement these requirements sooner than budgeted or planned and thereby incur unexpected expenses. 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 we operate our business in ways we cannot currently anticipate.

After this offering, we will be subject to Section 404 of the Sarbanes-Oxley Act and the related rules of the SEC that generally require our management and independent registered public accounting firm to report on the effectiveness of our internal control over financial reporting. Beginning with the second annual report that we will be required to file with the SEC, Section 404 of the Sarbanes-Oxley Act requires an annual management assessment of the effectiveness of our internal control over financial reporting. However, for so long as we remain an "emerging growth company" as defined in the JOBS Act, we intend to take advantage of certain exemptions from various reporting requirements that are applicable to public companies that are not emerging growth companies, including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act. Once we are no longer an "emerging growth company" or, if before such date, we opt to no longer take advantage of the applicable exemption, we will be required to include an opinion from our independent registered public accounting firm on the effectiveness of our internal control over financial reporting.

To date, we have never conducted a review of our internal control for the purpose of providing the reports required by these rules. To achieve compliance with Section 404 within the prescribed period, we will be engaged in a process to document and evaluate our internal control over financial reporting, which is both

costly and challenging. In this regard, we will need 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 our review and testing, we may identify deficiencies and be unable to remediate them before we must provide the required reports. We or our independent registered public accounting firm may not be able to conclude on an ongoing basis that we have effective internal control over financial reporting, which could harm our operating results, cause investors to lose confidence in our reported financial information and cause the trading price of our stock to fall. Furthermore, if we have a material weakness in our internal control over financial reporting, we may not detect errors on a timely basis and our financial statements may be materially misstated.

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

Other than the dividends on our Series A convertible preferred stock, which will be paid in stock in connection with this offering, we do not anticipate declaring or paying, in the foreseeable future, any cash dividends on our capital stock and, consequently, your ability to achieve a return on your investment will depend on appreciation in the price of our common stock.

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

A significant portion of our total outstanding shares are restricted from immediate resale but may be sold into the market in the near future, which could cause the market price of our common stock to drop significantly, even if our business is doing well.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. Upon the closing of this offering, we will have 9,181,615 shares of common stock outstanding (or 9,744,115 shares, if the underwriters exercise their option in full). This includes 3,750,000 shares that we are selling in this offering (or 4,312,500 shares, if the underwriters exercise their option in full), which, unless purchased by our affiliates, including our directors, officers, employees and other individuals associated with us and members of their respective families pursuant to the directed share program or otherwise, may be resold in the public market immediately without restriction. The remaining 5,431,615 shares, as well as any shares purchased by our affiliates through the directed share program or otherwise in this offering, are currently or will be restricted as a result of securities laws or lock-up agreements and will be able to be sold as described in the "Shares Eligible for Future Sale" section of this prospectus.

In addition, certain of our existing security holders and their affiliated entities, including stockholders affiliated with our directors, have indicated an interest in purchasing an aggregate of up to $10 million of shares of our common stock in this offering at the initial public offering price. Any shares purchased by these parties will be restricted as a result of securities laws and lock-up agreements and will be able to be sold as described in the "Shares Eligible for Future Sale" section of this prospectus.

Moreover, after this offering, holders of an aggregate of approximately 2,124,880 shares of our common stock will have rights, subject to some conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. See "Description of Capital Stock — Registration Rights."

We also intend to register all the shares of common stock that we may issue under our equity incentive plans and employee stock purchase plan. Effective upon the effectiveness of the registration statement of which this prospectus is a part, an aggregate of 2,550,000 shares of our common stock will initially be reserved for future issuance under these plans, 574,800 shares will remain available for issuance following the grant of options to purchase an aggregate of 1,825,200 shares of common stock to our officers, directors, employees and consultants in connection with this offering, and all 150,000 shares reserved under our employee stock purchase plan will remain available for issuance. Once we register these shares, and the 302,842 shares issuable upon the exercise of stock options outstanding under the 2015 Plan as of May 2, 2016, which we plan to do shortly after the closing of this offering, they can be freely sold in the public market upon issuance, subject to the lock-up agreements referred to above. If a large number of these shares are sold in the public market, the sales could reduce the trading price of our common stock. For a more detailed description of sales that may occur in the future, see "Shares Eligible for Future Sale".

Our issuance of the common stock pursuant to this offering might result in an "ownership change" at the time of issuance, which will increase the risk that we could experience an ownership change in the future. Any ownership change would significantly limit our ability to utilize our net operating loss carryforwards and certain other tax attributes.

As of March 31, 2016, we had approximately $9.3 million in U.S. federal and state net operating loss carryforwards, which will begin to expire in 2034 for federal and 2024 for state, that we can use in certain circumstances to offset any future taxable income and thus reduce any federal income tax liability. We also had net tax credit carryforwards of $125,000 available to reduce future tax liabilities, if any, for U.S. federal purposes. Our ability to utilize these net operating losses and tax credit carryforwards to offset future taxable income may be significantly limited if we experience an "ownership change," as defined in Section 382 of the Internal Revenue Code of 1986, as amended, or the Code. In general, an ownership change will occur if there is a cumulative change in our ownership by "5-percent shareholders" (as defined in the Code) that exceeds 50 percentage points over a rolling three-year period. A corporation that experiences an ownership change will generally be subject to an annual limitation on the corporation's subsequent use of net operating loss carryovers that arose from pre-ownership change periods and use of losses that are subsequently recognized with respect to assets that had a built-in-loss on the date of the ownership change. The amount of the annual limitation generally equals the value of the corporation immediately before the ownership change multiplied by the long-term tax-exempt interest rate (subject to certain adjustments). To the extent that the limitation in a post-ownership-change year is not fully utilized, the amount of the limitation for the succeeding year will be increased.

We do not expect to experience an ownership change as a result of our issuance of common stock in this offering. 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 such issuances might be treated as resulting in an ownership change. We have 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 our inception, due to the significant costs and complexities associated with such study. Even if there will be no immediate ownership change as a result of such issuance, the issuance of stock pursuant to this offering will be taken into account in determining the cumulative change in our ownership for Section 382 purposes. As a result, this offering materially increases the risk that we could experience an ownership change in the future. If we experience an ownership change, we may not be able to fully utilize our net operating losses, resulting in additional income taxes and a reduction in our stockholders' equity.

Our amended and restated bylaws will 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 our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated bylaws will provide that, subject to limited exceptions, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, any action asserting a claim against us arising pursuant to any provision of the Delaware General Corporation Law, as amended, our amended and restated certificate of incorporation or our amended and restated bylaws, any action to interpret, apply, enforce or determine the validity of our amended and restated certificate of incorporation or our amended and restated bylaws or any other action asserting a claim against us that is governed by the internal affairs doctrine. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and to have consented to the provisions of our amended and restated certificate of incorporation described above. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and employees. Alternatively, if a court were to find these provisions of our amended and restated certificate of incorporation inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business and financial condition.

Unstable market and economic conditions may have serious adverse consequences on our 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. We cannot assure you that further deterioration in credit and financial markets and confidence in economic conditions will not occur. Our 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 our growth strategy, financial performance and stock price and could require us to delay or abandon clinical development plans. In addition, there is a risk that one or more of our current service providers, manufacturers and other partners may not survive these difficult economic times, which could directly affect our ability to attain our operating goals on schedule and on budget.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the sections entitled "Prospectus Summary," "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business," contains forward-looking statements. We may, in some cases, use words such as "anticipate," "believe," "could," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "project," "should," "will," "would" or the negative of those terms, and similar expressions that convey uncertainty of future events or outcomes to identify these forward-looking statements. Any statements contained herein that are not statements of historical facts may be deemed to be forward-looking statements. Forward-looking statements in this prospectus include, but are not limited to, statements about:

- our anticipated timing of regulatory submissions; commencement and completion of preclinical studies and clinical trials, meetings with the FDA and other regulatory authorities; and product approvals for gemcabene or any other product candidates we may pursue in the future;
- the outcome of our ongoing preclinical toxicology studies related to our partial clinical hold with respect to clinical trials of longer than six months in duration;
- the outcome of our Phase 2b and Phase 3 clinical trials of gemcabene and our ability to replicate positive results from a completed clinical trial in a future clinical trial;
- our expected clinical trial designs and regulatory pathways;
- our expectation that the FDA will not require us to complete a cardiovascular outcomes trial prior to approval;
- our expectations for the attributes of gemcabene or any other product candidate we may pursue in the future, including pharmaceutical properties, efficacy, safety, dosing regimens and cost, as compared to other lipid-lowering therapies;
- our ability to design an efficient development plan;
- our expectation that our existing capital resources and the net proceeds from this offering will be sufficient to enable us to complete our planned three late stage clinical trials, commence our Phase 3 registration trials and complete certain preclinical studies;
- our plans to advance the late-stage clinical development of gemcabene across multiple target indications, pursue oral combination opportunities for gemcabene, maximize the global commercial value of gemcabene and leverage the expertise and experience of our management team to evaluate future in-license acquisition opportunities;
- our estimates regarding industry trends and market potential for gemcabene;
- if approved, our ability to maintain regulatory approval of gemcabene and respond and adhere to regulatory requirements;
- our ability to identify, in-license or acquire, develop and, if approved, successfully commercialize best-in-class products, including gemcabene or any other product candidates we may pursue in the future;
- our ability to enhance brand awareness among key thought leaders and physicians;
- if approved, the rate and degree of market acceptance of gemcabene or any other product candidates we may pursue in the future;
- if approved, our ability to compete with other companies that are, or may be, developing or selling products that may compete with gemcabene;
- reimbursement policies, including any future changes to such policies or related government legislation and our ability to sell gemcabene, if approved;
- regulatory and legal developments in the United States and in foreign countries;
- our ability to obtain and maintain intellectual property protection for gemcabene or any other product candidates we may pursue in the future and not infringe upon the intellectual property of others;

- our ability to fund our working capital requirements;
- our estimates of our expenses, ongoing losses, future revenue, capital requirements and our needs for, or ability to, obtain additional financing;
- the ability of any third parties with whom we collaborate for the development and commercialization of gemcabene to successfully perform their assigned functions;
- our ability to retain and recruit key scientific and management personnel;
- our financial performance;
- our expectations regarding the period during which we qualify as an emerging growth company under the JOBS Act; and
- our expected use of the proceeds from this offering.

These forward-looking statements reflect our management's beliefs and views with respect to future events and are based on estimates and assumptions as of the date of this prospectus and are subject to risks and uncertainties. We discuss many of these risks in greater detail under "Risk Factors." Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. Given these uncertainties, you should not place undue reliance on these forward-looking statements.

You should read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in this prospectus by these cautionary statements. Except as required by law, we undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise.

In addition, statements that "we believe" and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and investors are cautioned not to unduly rely upon these statements.

STATISTICAL DATA AND MARKET INFORMATION

This prospectus contains estimates and other statistical data made by independent parties and by us relating to market size, the incidence of certain medical conditions and other industry data. These data, to the extent they contain estimates or projections, involve a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates or projections. Industry publications and other reports we have obtained from independent parties generally state that the data contained in these publications or other reports have been obtained in good faith or from sources considered to be reliable, but they do not guarantee the accuracy or completeness of such data. The industry in which we operate is subject to risks and uncertainties due to a variety of factors, including those described in "Risk Factors." These and other factors could cause results to differ materially from those expressed in these publications and reports.

USE OF PROCEEDS

We estimate that we will receive net proceeds of approximately $39.9 million (or approximately $46.1 million if the underwriters exercise their option to purchase additional shares in full) from the sale of the shares of common stock offered by us in this offering, based on an assumed initial public offering price of $12.00 per share, the mid-point of the estimated price range set forth on the cover page of this prospectus, and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

A $1.00 increase (decrease) in the assumed initial public offering price of $12.00 per share, the mid-point of the estimated price range set forth on the cover page of this prospectus, would increase (decrease) the net proceeds to us from this offering by approximately $3.5 million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions.

Similarly, a 1,000,000 share increase (decrease) in the number of shares offered by us, as set forth on the cover of this prospectus, would increase (decrease) the net proceeds to us by $11.2 million, assuming the assumed initial public offering price of $12.00 per share, the mid-point of the estimated price range set forth on the cover of this prospectus, remains the same, and after deducting the estimated underwriting discounts and commissions.

The principal purposes of this offering are to make significant investments in research and development and clinical activities related to gemcabene and for working capital and other general corporate purposes as well as to establish a public market for our common stock and to facilitate our future access to the public equity markets.

We anticipate that we will use the net proceeds of this offering, together with our cash and cash equivalents, for the following purposes:

- approximately $20.0 million to fund development costs associated with our three late stage clinical trials of gemcabene for our target indications and for costs associated with our planned End of Phase 2 (EOP2) meetings with the FDA;
- approximately $4.0 million to fund manufacturing-related activities for gemcabene;
- approximately $3.5 million to fund development costs associated with preclinical studies and related activities for gemcabene; and
- the balance for general corporate purposes, including working capital, general administrative costs, potential acquisition or in-licensing costs and the prosecution and maintenance of our intellectual property.

We may also use a portion of the remaining net proceeds to advance the development of any acquired or in-licensed product candidate. However, we have no current commitments or obligations to acquire or in-license any product candidate.

To the extent our net proceeds from this offering are lower because of a lower price per share or because of a lower number of shares sold, we expect to prioritize the completion of our three late stage clinical trials for our target indications and would reduce expenditures related to acquiring or in-licensing additional product candidates as well as expenditures related to manufacturing-related activities. These reductions in expenditures are not anticipated to affect the timing of the results of our currently planned clinical trials, our EOP2 meetings with the FDA or any currently planned preclinical studies and related activities.

We expect to have our EOP2 meetings with the FDA in the first half of 2018. Based upon our currently anticipated clinical trials, we will need to raise additional capital to continue to fund the further development of gemcabene and our other operations. The amount and timing of our actual expenditures will

depend upon numerous factors, including our ability to gain access to additional financing and the relative success and cost of our research, preclinical and clinical development programs. We have based this estimate on assumptions that may prove to be wrong, however, and we could use our cash resources sooner than we expect. 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.

Our expected use of the net proceeds from this offering represents our current intentions based upon our present plans and business condition, which could change in the future as our plans and business conditions evolve. The amounts and timing of our actual use of the net proceeds will vary depending on numerous factors, including our ability to access additional financing, the relative success and cost of our research, preclinical and clinical development programs, whether we are able to enter into future licensing arrangements and the other factors described under "Risk Factors" in this prospectus. In addition, we might decide to postpone or not pursue clinical trials or preclinical activities if the net proceeds from this offering and any other sources of cash are less than expected.

Pending their use, we plan to invest the net proceeds from this offering in short- and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government, or hold them as cash.

DIVIDEND POLICY

Immediately prior to the closing of this offering, we intend to issue shares of common stock to our existing holders of Series A convertible preferred stock representing accrued dividends (Accrued Dividends) due upon the conversion of their Series A convertible preferred stock into common stock in connection with this offering. We expect to issue 65,225 shares of common stock with respect to such Accrued Dividends, assuming the closing of this offering and conversion of our Series A convertible preferred stock occurred on May 2, 2016.

Other than the Accrued Dividends, we do not anticipate declaring or paying, in the foreseeable future, any cash dividends on our capital stock. We currently intend to retain all available funds and any future earnings to support our operations and finance the growth and development of our business. Any future determination related to our dividend policy will be made at the discretion of our board of directors and will depend upon, among other factors, our results of operations, financial condition, capital requirements, contractual restrictions, business prospects and other factors our board of directors may deem relevant.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and our capitalization as of March 31, 2016:

- on an actual basis;
- on a pro forma basis to reflect (1) the conversion of all our outstanding shares of our convertible preferred stock into 745,637 shares of common stock immediately prior to the closing of this offering, (2) the issuance of 59,992 shares of common stock immediately prior to the closing of the offering pursuant to the Accrued Dividends described elsewhere in this prospectus in the section titled "Dividend Policy" (assuming the closing of the offering occurred on March 31, 2016), (3) the issuance of 867,498 shares of common stock pursuant to the automatic conversion of the principal and accrued and unpaid interest outstanding on March 31, 2016 on our convertible notes issued prior to March 31, 2016, immediately prior to the closing of this offering, (4) the accelerated vesting of 162,945 shares of restricted stock unvested as of March 31, 2016 valued at approximately $14,000 held by certain employees upon the closing of this offering and (5) the filing of our amended and restated certificate of incorporation immediately prior to the closing of this offering; and
- on a pro forma as adjusted basis to reflect (1) the pro forma adjustments set forth above and (2) our sale in this offering of 3,750,000 shares of common stock at an assumed initial public offering price of $12.00 per share, the mid-point of the estimated price range set forth on the cover page of this prospectus, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

You should read the following table together with "Management's Discussion and Analysis of Financial Condition and Results of Operations," "Description of Capital Stock" and the financial statements and related notes appearing elsewhere in this prospectus.

	As of March 31, 2016		
	Actual	Pro Forma (unaudited)	Pro Forma As Adjusted (unaudited)
	(in thousands, except share and per share amounts)		
Cash and cash equivalents	$ 1,629	$ 1,629	$ 41,479
Convertible notes to related parties	1,866	—	—
Convertible notes	4,595	—	—
Premium conversion derivative	331	—	—
Series A convertible preferred stock, $0.001 par value per share; 2,325,581 shares authorized, 745,637 shares issued and outstanding, actual; 0 shares authorized, 0 shares issued and outstanding, pro forma; 0 shares authorized, 0 shares issued and outstanding, pro forma as adjusted	8,102	—	—
Stockholders' (deficit) equity:			
Preferred stock, $0.001 par value per share; 0 shares authorized, issued and outstanding, actual; 10,000,000 shares authorized, 0 shares issued and outstanding, pro forma and pro forma as adjusted	—	—	—
Common stock, $0.001 par value per share; 17,674,419 shares authorized, 3,758,488 shares issued and outstanding, actual; 100,000,000 shares authorized, 5,431,615 shares issued and outstanding, pro forma; and 100,000,000 shares authorized, 9,181,615 shares issued and outstanding, pro forma as adjusted	12	12	16
Additional paid in capital	—	13,929	53,775
Accumulated deficit	(14,521)	(14,535)	(14,535)
Total stockholders' (deficit) equity	(14,509)	(594)	39,256
Total capitalization	$ 385	$ 1,035	$ 80,735

A $1.00 increase (decrease) in the assumed initial public offering price of $12.00 per share, the mid-point of the estimated price range set forth on the cover page of this prospectus, would increase (decrease) the amount of each of cash and cash equivalents, additional paid-in capital, total stockholders' (deficit) equity and total capitalization, on a pro forma as adjusted basis, by approximately $3.5 million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions. Similarly, each increase (decrease) of 1,000,000 shares in the number of shares offered by us would increase (decrease) each of cash and cash equivalents, total stockholders' (deficit) equity and total capitalization, on a pro forma as adjusted basis, by approximately $11.2 million, assuming the assumed initial public offering price remains the same, and after deducting estimated underwriting discounts and commissions. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual public offering price and other terms of this offering determined at pricing.

The table and calculations above exclude:

- 302,842 shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2016 at a weighted-average exercise price of $2.428 per share;

- 1,825,200 shares of common stock issuable upon the exercise of stock options with a per share exercise price equal to the initial public offering price to be granted to certain officers, directors, employees and consultants in connection with this offering;

- 574,800 shares of common stock reserved for future issuance under our 2015 Equity Incentive Plan, which will be amended and restated in connection with this offering, and 150,000 shares of common stock reserved for future issuance under our 2016 Employee Stock Purchase Plan, which will become effective in connection with this offering, as well as any automatic increases in the number of shares of common stock reserved for future issuance under these plans; and

- shares issuable upon conversion of our convertible notes issued after March 31, 2016, which notes will convert automatically immediately prior to the closing of this offering into 748,703 shares, assuming the closing of this offering occurred on May 2, 2016.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be immediately diluted to the extent of the difference between the initial public offering price per share of our common stock and the pro forma as adjusted net tangible book value per share of our common stock after this offering. Net tangible book value dilution per share to new investors represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the pro forma as adjusted net tangible book value per share of common stock.

Net tangible book value per share is determined by dividing our total tangible assets less our total liabilities by the number of shares of common stock outstanding. Our pro forma net tangible book deficit as of March 31, 2016 was $0.6 million, or $0.11 per share of common stock. Pro forma net tangible book value gives effect to: (1) the conversion of all our outstanding shares of our convertible preferred stock into 745,637 shares of common stock immediately prior to the closing of this offering, (2) the issuance of 59,992 shares of common stock immediately prior to the closing of the offering pursuant to the Accrued Dividends described elsewhere in this prospectus in the section titled "Dividend Policy" (assuming the closing of the offering occurred on March 31, 2016), (3) the issuance of 867,498 shares of common stock pursuant to the automatic conversion of the principal and accrued and unpaid interest outstanding on March 31, 2016 on our convertible notes issued prior to March 31, 2016, immediately prior to the closing of this offering, (4) the accelerated vesting of 162,945 shares of restricted stock unvested as of March 31, 2016 valued at approximately $14,000 held by certain employees upon the closing of this offering and (5) the filing of our amended and restated certificate of incorporation immediately prior to the closing of this offering.

After giving effect to: (1) the pro forma adjustments set forth above and (2) the issuance and sale of 3,750,000 shares of common stock in this offering at an assumed initial public offering price of $12.00 per share, the mid-point of the estimated price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of March 31, 2016 would have been approximately $39.3 million, or $4.28 per share of our common stock. This represents an immediate increase in pro forma net tangible book value of $4.39 per share to our existing stockholders and an immediate dilution of $7.73 per share to investors purchasing shares in this offering.

The following table illustrates this dilution on a per share basis:

Assumed initial public offering price per share		$ 12.00
Pro forma net tangible book value (deficit) per share as of March 31, 2016	$ (0.11)	
Increase in pro forma net tangible book value per share attributable to investors participating in this offering	4.39	
Pro forma as adjusted net tangible book value per share after this offering		4.28
Dilution in pro forma as adjusted net tangible book value per share to new investors in this offering		$ 7.73

A $1.00 increase (decrease) in the assumed initial public offering price of $12.00 per share, the mid-point of the estimated price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted net tangible book value per share after this offering by approximately $0.38 per share and the dilution in pro forma per share to investors participating in this offering by approximately $0.62 per share, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions.

Similarly, a 1,000,000 share increase (decrease) in the number of shares offered by us, as set forth on the cover of this prospectus, would increase (decrease) the pro forma as adjusted net tangible book value per share after this offering by approximately $0.68 per share and decrease (increase) the dilution in pro forma per share to investors participating in this offering by approximately $0.68 per share, assuming the assumed initial public offering price of $12.00 per share (the mid-point of the estimated price range set forth on the cover of this prospectus) remains the same, and after deducting the estimated underwriting discounts and commissions.

If the underwriters exercise in full their option to purchase 562,500 additional shares of our common stock in this offering, the pro forma as adjusted net tangible book value per share after this offering will increase to $4.67 per share, representing an immediate increase in pro forma as adjusted net tangible book value to existing stockholders of $4.78 per share and an immediate decrease of dilution of $7.33 per share to new investors participating in this offering.

The following table summarizes, on a pro forma as adjusted basis as of March 31, 2016, the number of shares purchased or to be purchased from us, the total consideration paid or to be paid to us, and the average price per share paid or to be paid to us by existing stockholders and investors participating in this offering at the initial public offering price of $12.00 per share, before deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. As the table below shows, investors participating in this offering will pay an average price per share substantially higher than our existing stockholders paid.

	SHARES PURCHASED		TOTAL CONSIDERATION		AVERAGE PRICE PER SHARE
	NUMBER	PERCENT	AMOUNT	PERCENT	
Existing stockholders before this offering	5,431,615	59.2%	$ 9,839,951	17.9%	$ 1.81
Investors participating in this offering	3,750,000	40.8	45,000,000	82.1	$ 12.00
Total	9,181,615	100.0%	$ 54,839,951	100.0%	

Except as otherwise indicated, the tables and calculations above assume no exercise of the underwriters' option to purchase additional shares. If the underwriters exercise their option to purchase additional shares in full, our existing stockholders would own 55.7% and our new investors would own 44.3% of the total number of shares of our common stock outstanding after the closing of this offering.

Certain of our existing security holders and their affiliated entities, including stockholders affiliated with our directors, have indicated an interest in purchasing an aggregate of up to $10 million of shares of our common stock in this offering at the initial public offering price. As these indications of interest are non-binding, the foregoing discussion and table do not reflect the potential purchase of any shares in this offering by our existing stockholders.

The tables and calculations above are based on 5,431,615 shares of our common stock outstanding as of March 31, 2016, which excludes:

- 302,842 shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2016 at a weighted-average exercise price of $2.428 per share;
- 1,825,200 shares of common stock issuable upon the exercise of options with a per share exercise price equal to the initial public offering price to be granted to certain officers, directors, employees and consultants in connection with this offering;
- 574,800 shares of common stock reserved for future issuance under our 2015 Equity Incentive Plan, which will be amended and restated in connection with this offering, and 150,000 shares of common stock reserved for future issuance under our 2016 Employee Stock Purchase Plan, which

will become effective in connection with this offering, as well as any automatic increases in the number of shares of common stock reserved for future issuance under these plans; and

- shares issuable upon conversion of our convertible notes issued after March 31, 2016, which notes will convert automatically immediately prior to the closing of this offering into 748,703 shares, assuming the closing of this offering occurred on May 2, 2016.

To the extent that outstanding options are exercised, you will experience further dilution. In addition, we may choose to raise additional capital through the sale of equity or convertible debt securities due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent we issue additional shares of common stock or other equity or convertible debt securities in the future, there will be further dilution to investors participating in this offering.

SELECTED FINANCIAL DATA

The following selected financial data should be read together with "Capitalization," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the financial statements, related notes and other financial information included elsewhere in this prospectus. The selected financial data in this section are not intended to replace the financial statements and are qualified in their entirety by the financial statements and related notes included elsewhere in this prospectus.

We derived the statements of operations data for the years ended December 31, 2014 and 2015 and the balance sheet data as of December 31, 2014 and 2015 from our audited financial statements included elsewhere in this prospectus. We derived the statements of operations data for the three months ended March 31, 2015 and 2016 and the balance sheet data as of March 31, 2016 from our unaudited interim financial statements appearing elsewhere in this prospectus. The unaudited interim financial statements have been prepared on the same basis as our audited financial statements and include all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of the financial information set forth in those statements. Our historical results are not necessarily indicative of results to be expected in any future period, and results from any interim period may not necessarily be indicative of the results of a full year or any other period.

	Year Ended December 31,		Three Months Ended March 31,	
	2014	2015	2015	2016
			(unaudited)	
	(in thousands, except share and per share amounts)			
Statements of Operations Data:				
Operating expenses:				
General and administrative	$ 214	$ 3,177	$ 475	$ 1,050
Research and development	52	3,991	206	1,176
Acquired in-process research and development	—	908	908	—
Total operating expenses	266	8,076	1,589	2,226
Loss from operations	(266)	(8,076)	(1,589)	(2,226)
Interest (expense) income	(55)	(762)	(690)	127
Loss on convertible note extinguishment	—	(198)	—	—
Other income (expense)	1	7	—	(4)
Net loss	(320)	(9,029)	(2,279)	(2,103)
Adjustment to redemption value on Series A convertible preferred stock	—	(2,968)	(2,517)	(149)
Premium upon substantial modification of convertible notes with certain shareholders	—	(1,047)	—	—
Net loss attributable to common stockholders	$ (320)	$ (13,044)	$ (4,796)	$ (2,252)
Net loss per share attributable to common stockholders, basic and diluted[(1)]	$ (0.21)	$ (4.54)	$ (2.27)	$ (0.65)
Weighted-average shares used in computing net loss per share attributable to common stockholders, basic and diluted[(1)]	1,521,703	2,875,053	2,110,097	3,468,764
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)[(1)]		$ (2.95)		$ (0.42)
Weighted-average shares used in computing pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)[(1)]		4,305,100		5,301,705

(1) See notes 2 and 10 to our financial statements appearing elsewhere in this prospectus for further details on the calculation of net loss per share attributable to common stockholders, basic and diluted, and pro forma net loss per share attributable to common stockholders, basic and diluted, and the weighted-average number of shares used in computation of the per share amounts. On April 22, 2016, our board of directors approved a 1-for-3.119 reverse stock split of our common stock and preferred stock, which became effective on April 27, 2016. All share and per share data in this table have been adjusted to reflect the reverse stock split.

	December 31, 2014	December 31, 2015	March 31, 2016 (unaudited)
		(in thousands)	
Balance Sheet Information:			
Cash and cash equivalents	$ 317	$ 3,620	$ 1,629
Working capital	13	23	(599)
Total assets	348	4,500	2,637
Convertible notes (including premium conversion derivative)	810	6,769	6,792
Total liabilities	879	8,927	9,044
Series A convertible preferred stock	—	7,953	8,102
Accumulated deficit/members' deficit	(584)	(12,392)	(14,521)
Total stockholders' deficit	(531)	(12,380)	(14,509)

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis should be read in conjunction with "Selected Financial Data" and our financial statements and related notes included elsewhere in this prospectus. This discussion and analysis and other parts of this prospectus contain forward-looking statements based upon current beliefs, plans and expectations that involve risks, uncertainties and assumptions, such as statements regarding our plans, objectives, expectations, intentions and projections. Our actual results and the timing of selected events could differ materially from those anticipated in these forward-looking statements as a result of several factors, including those set forth under "Risk Factors" and elsewhere in this prospectus. You should carefully read the "Risk Factors" section of this prospectus to gain an understanding of the important factors that could cause actual results to differ materially from our forward-looking statements. Please also see the section entitled "Special Note Regarding Forward-Looking Statements."

Overview

We are 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. Dyslipidemia is generally characterized by an elevation of LDL-C, or bad cholesterol, triglycerides, or fat in the blood, or both. We are developing our product candidate gemcabene, a novel, once-daily, oral therapy, for patients who are unable to achieve normal levels of LDL-C or triglycerides with currently approved therapies, primarily statin therapy. Gemcabene's mechanism of action is designed to enhance the clearance of VLDLs in the plasma and inhibit the production of fatty acids and cholesterol in the liver. Gemcabene has been tested as monotherapy and in combination with statins and other drugs in 895 subjects, which we define as healthy volunteers and patients, across 18 Phase 1 and Phase 2 clinical trials and has demonstrated promising evidence of efficacy, safety and tolerability.

We are initially pursuing gemcabene in the following four indications as a treatment in addition to maximally tolerated statin therapy for patients who are unable to reach their lipid-lowering goals: HoFH, HeFH, ASCVD and SHTG. We believe we can design an efficient development plan to provide a new treatment alternative for HoFH patients. Furthermore, we believe that gemcabene's potential ability to treat patients in the most severe segment of the dyslipidemia market will enhance brand awareness among key thought leaders and physicians. We are developing gemcabene for HeFH, ASCVD and SHTG given gemcabene's: (1) promising clinical data in these indications; (2) cost-effective manufacturing process; (3) convenient oral dosing; (4) viability as adjunct combination therapy; and (5) large commercial potential. By the end of 2016, we expect to initiate three late stage clinical trials for gemcabene in HoFH, hypercholesterolemia, including HeFH and ASCVD patients on maximally tolerated statins, and SHTG. Upon completion of one or more of these clinical trials, we intend to request one or more End of Phase 2 (EOP2) meetings with the FDA to reach an agreement on the design of Phase 3 registration trials and long term safety exposure for our target indications. We intend to pursue similar discussions with Canadian and European health authorities.

Our Company was co-founded in November 2008 as a limited liability company under the name Michigan Life Therapeutics, LLC (MLT) by former Pfizer employees, Dr. Charles Bisgaier and Mr. David Lowenschuss, who were responsible for licensing exclusive worldwide rights to gemcabene from Pfizer in April 2011. In October 2014, we incorporated a new entity under the name Gemphire Therapeutics Inc. in Delaware. In November 2014, we 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 our incorporation from Michigan to Delaware and to convert from a limited liability company to a corporation.

To date, our primary activities have been conducting research and development activities, planning clinical trials, performing business and financial planning, recruiting personnel and raising capital. We do not have any products approved for sale and have not generated any revenue. We do not expect to generate revenue until, and unless, the FDA or other regulatory authorities approve gemcabene and we successfully commercialize gemcabene. Until such time, if ever, as we can generate substantial product revenue, we expect to finance our cash needs through a combination of equity and debt financings as well as collaborations, strategic alliances and licensing arrangements. Through March 31, 2016, we have funded our operations primarily through the issuance of preferred stock and convertible notes, totaling $9.8 million in gross proceeds. Our net losses were $0.3 million, $9.0 million and $2.1 million for the years ended December 31, 2014 and 2015 and for the three months ended March 31, 2016, respectively. As of March 31, 2016, we had an accumulated deficit of $14.5 million. We anticipate that our expenses will increase substantially as we:

- continue clinical trials for gemcabene and for any other product candidate in our future pipeline;
- develop additional product candidates that we identify, in-license or acquire;
- seek regulatory approvals for any product candidates that successfully complete clinical trials;
- contract to manufacture our product candidates;
- establish on our own or with partners, a sales, marketing and distribution infrastructure to commercialize any products for which we may obtain regulatory approval;
- maintain, expand and protect our intellectual property portfolio;
- hire additional staff, including clinical, scientific, operational and financial personnel, to execute our business plan;
- add operational, financial and management information systems and personnel, including personnel to support our product development and potential future commercialization efforts; and
- to enable us to operate as a public company.

Our net losses may fluctuate significantly from quarter-to-quarter and year-to-year, depending on the timing of our preclinical studies, clinical trials and our expenditures on other research and development activities.

Financial Operations Overview

Revenue

To date, we have not generated any revenue. We do not expect to generate revenue unless or until we obtain regulatory approval of and commercialize gemcabene. If we fail to complete the development of gemcabene, or any other product candidate we may pursue in the future, in a timely manner, or fail to obtain regulatory approval, our ability to generate future revenue would be compromised.

Operating Expenses

Our operating expenses are classified into three categories: general and administrative, research and development and acquired in-process 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. We anticipate that our general and administrative expenses will significantly increase in the future to support our continued research and development activities, potential commercialization of gemcabene, if approved, and any future product candidates we may develop and the increased costs of operating as a public company. These increases will include increased costs related to the hiring of additional personnel and fees for legal and professional services, as well as other public-company related costs.

Research and Development

To date, our 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. We accrue for costs incurred as the services are being provided by monitoring the status of the study or project, and the invoices received from our external service providers. We adjust our accrual as actual costs become known. Research and development activities are central to our business model.

We expect that gemcabene 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 we expect our research and development expenses to significantly increase over the next several years as we continue to conduct preclinical studies and clinical trials for gemcabene and potentially develop other product candidates. However, it is difficult to determine with certainty the duration, costs and timing to complete our current or future preclinical programs and clinical trials of gemcabene. The duration, costs and timing of clinical trials and development of gemcabene 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.

Acquired In-Process Research and Development

We include costs to acquire or in-license product candidates in acquired in-process research and development expenses. When we acquire the right to develop and commercialize a new product candidate, any up-front payments, or any future milestone payments that relate to the acquisition or licensing of such a right are immediately expensed as acquired in-process research and development in the period in which they are incurred. These costs are immediately expensed provided that the payments do not also represent processes or activities that would constitute a "business" as defined under generally accepted accounting principles in the United States (GAAP), or provided that the product candidate has not achieved regulatory approval for marketing and, 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.

Interest (Expense) Income

Interest expense consists of interest costs related to promissory notes outstanding as well as interest cost and the underlying premium conversion derivative related to the convertible notes issued by us. The promissory and convertible notes we have issued have an annual interest rate of 8%. The interest on the promissory and convertible notes issued subsequent to February 2015 compound on an annual basis while

the interest on the convertible notes issued in or prior to February 2015 compounded daily. All of the convertible notes issued in or prior to February 2015 were converted to Series A preferred shares in March 2015.

We expect to earn interest income in future periods from the investment of net proceeds from this offering in interest bearing instruments.

Other Income (Expense)

Other income (expense) relates to 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 we have incurred operating losses to date, and a full valuation allowance has been provided on the net deferred tax assets as of December 31, 2014 and 2015 and March 31, 2016.

Results of Operations

The following table summarizes our operating results for the periods indicated:

	Year Ended December 31,			Three Months Ended March 31,		
	2014	2015	Change	2015	2016	Change
			(in thousands)		(unaudited)	
Operating expenses:						
General and administrative	$ 214	$ 3,177	$ 2,963	$ 475	$ 1,050	$ 575
Research and development	52	3,991	3,939	206	1,176	970
Acquired in-process research and development	—	908	908	908	—	(908)
Total operating expenses	266	8,076	7,810	1,589	2,226	637
Loss from operations	(266)	(8,076)	(7,810)	(1,589)	(2,226)	637
Interest (expense) income	(55)	(762)	(707)	(690)	127	(817)
Loss on convertible note extinguishment	—	(198)	(198)			
Other income (expense)	1	7	6	—	(4)	4
Net loss	$ (320)	$ (9,029)	$ (8,709)	$ (2,279)	$ (2,103)	$ (176)

Comparison of Years Ended December 31, 2014 and 2015

General and Administrative

General and administrative expenses for the year ended December 31, 2014 were $0.2 million compared to $3.2 million for the year ended December 31, 2015. The $3.0 million increase was primarily attributable to an increase in staffing and professional services. General and administrative expenses included $53,000 and $0.3 million in share-based compensation expense in the years ended December 31, 2014 and 2015, respectively.

Research and Development

Research and development expenses for the year ended December 31, 2014 were $52,000 compared to $4.0 million for the year ended December 31, 2015. The $3.9 million increase was primarily attributable to preclinical studies and manufacturing activities to support clinical advancement of gemcabene and fees paid to external service providers for clinical trial development and regulatory consulting.

Acquired In-process Research and Development

Acquired in-process research and development expenses for the year ended December 31, 2015 were $0.9 million. There were no acquired in-process research and development expenses during the prior year. The increase was attributable to an equity milestone payment under our license agreement with Pfizer. We issued 675,250 shares of common stock to Pfizer and immediately expensed the equity milestone payment in the first quarter of 2015 as acquired in-process research and development expenses at the fair value equivalent of the shares issued in the amount of $0.9 million.

Interest (Expense) Income

Non-cash interest expense for the year ended December 31, 2014 was $55,000 compared to $0.8 million for the year ended December 31, 2015. The $0.7 million increase in interest expense was primarily due to the issuance of convertible notes in the first, third and fourth quarters of 2015. Cash interest paid during the years ended December 31, 2014 and 2015 was zero and $2,000, respectively. The convertible notes issued through the first quarter of 2015 were converted to Series A preferred shares on March 31, 2015. The convertible notes issued in July and December 2015 were outstanding at December 31, 2015.

Loss on convertible note extinguishment

Non-cash loss on convertible note extinguishment for the years ended December 31, 2014 and 2015 was zero and $0.2 million, respectively. The convertible notes issued in July 2015 were amended in December 2015. The amendment added a new contingent conversion feature, served to extend the maturity date by five months and revised certain conversion premiums. As a result of the modifications made to such convertible notes, we accounted for the amendment as a note extinguishment which gave rise to the $0.2 million non-cash loss in 2015.

Comparison of the Three Months Ended March 31, 2015 and 2016

General and Administrative

General and administrative expenses for the three months ended March 31, 2015 were $0.5 million compared to $1.1 million for the three months ended March 31, 2016. The $0.6 million increase was primarily attributable to an increase in staffing and professional services. General and administrative expenses included $23,000 and $123,000 in share-based compensation expense during the three months ended March 31, 2015 and 2016, respectively.

Research and Development

Research and development expenses for the three months ended March 31, 2015 were $0.2 million compared to $1.2 million for the three months ended March 31, 2016. The $1.0 million increase was primarily attributable to preclinical studies and manufacturing activities to support clinical advancement of gemcabene and fees paid to external service providers for clinical trial development and regulatory consulting.

Acquired In-process Research and Development

Acquired in-process research and development expenses during the three months ended March 31, 2015 were $0.9 million which was the result of an equity milestone payment under our license agreement with Pfizer. We issued 675,250 shares of common stock to Pfizer and immediately expensed the equity milestone payment in the first quarter of 2015 as acquired in-process research and development expenses at the fair value equivalent of the shares issued in the amount of $0.9 million. No acquired in-process research and development expenses were incurred during the three months ended March 31, 2016.

Interest Income (Expense)

Non-cash interest expense for the three months ended March 31, 2015 was $0.7 million compared to non-cash interest income of $127,000 for the three months ended March 31, 2016. The change was primarily due to the amortization of the note premium associated with the July 2015 Interim Notes coupled with the bifurcation of the conversion premium liability and subsequent fair value adjustments associated with the Convertible and Interim Notes. The Convertible Notes issued through the first quarter of 2015 were converted to Series A preferred stock on March 31, 2015. The Interim Notes issued in July 2015, December 2015 and in February 2016 were outstanding as of March 31, 2016.

Liquidity and Capital Resources

Capital Resources

As of December 31, 2015 and March 31, 2016, our principal sources of liquidity consisted of cash and cash equivalents of approximately $3.6 million and $1.6 million, respectively. Our cash and cash equivalents are invested primarily in cash deposits.

We have not generated any revenue, and we anticipate that we will continue to incur losses for the foreseeable future.

We anticipate that our expenses will increase substantially as we:

- continue clinical trials for gemcabene and for any other product candidate in our future pipeline;
- develop additional product candidates that we identify, in-license or acquire;
- seek regulatory approvals for any product candidates that successfully complete clinical trials;
- contract to manufacture our product candidates;
- establish on our own or with partners, a sales, marketing and distribution infrastructure to commercialize any products for which we may obtain regulatory approval;
- maintain, expand and protect our intellectual property portfolio;
- hire additional staff, including clinical, scientific, operational and financial personnel, to execute our business plan;
- add operational, financial and management information systems and personnel, including personnel to support our product development and potential future commercialization efforts; and
- to enable us to operate as a public company.

Historical Capital Resources

Our primary source of cash has been proceeds from the issuance of preferred stock and from the issuance of convertible notes and promissory notes. From March 2009 through October 2014, we issued promissory notes for aggregate net proceeds of $0.3 million. The promissory notes compounded at an 8% rate per annum basis and were exchanged for convertible notes on November 1, 2014. From November 2014 through February 2015, we issued convertible notes for aggregate net proceeds of $2.4 million. The convertible notes compounded on a daily basis at an 8% rate per annum and $0.7 million was outstanding as of December 31, 2014. The convertible notes were converted into shares of our Series A preferred stock upon close of the preferred stock financing in March 2015. The conversion equaled 125% of the unpaid principal plus unpaid accrued interest on the convertible notes.

In March 2015, we issued preferred stock for aggregate net proceeds of approximately $1.5 million. In July and December 2015 we entered into convertible note financings in which we issued 8% convertible notes in an aggregate principal amount of $5.5 million to various investors. In February 2016, we issued additional 8% convertible notes in an aggregate principal amount of $0.2 million to various investors. In addition to our historical sources of cash through March 31, 2016, on April 14, 2016, we amended the outstanding convertible notes and issued additional 8% convertible notes in aggregate principal amount of $5.0 million to various investors. The proceeds from the issuances of preferred stock and from the issuances of the convertible and promissory notes have been used to fund our operations.

Under the amended terms of our outstanding convertible notes, upon the closing of a convertible preferred stock financing of at least $5 million, 125% of the outstanding principal and accrued interest under such notes shall convert into shares of the same series of stock issued in such financing at a conversion price equal to the per share price of the stock issued in such financing. In the event that we approve a change of control transaction or firmly underwritten public offering of our common stock prior to the consummation of such a stock financing, the outstanding principal, plus accrued interest, under such notes shall automatically convert into shares of our common stock at a conversion price of $6.70585 per share (which was adjusted from $2.15 in connection with the 1-for-3.119 reverse split of our stock, which became effective on April 27, 2016). In the event that a stock financing, change of control or initial public offering has not occurred, the convertible notes will become payable on demand any time after December 31, 2016.

The following table summarizes our cash flows for the periods indicated:

	Year Ended December 31,		Three Months Ended March 31,	
	2014	2015	2015	2016
			(unaudited)	
	(in thousands)			
Net cash used in operating activities	$ (195)	$ (5,433)	$ (620)	$ (2,056)
Net cash used in investing activities	—	—	—	—
Net cash provided by financing activities	509	8,736	2,307	65
Net increase (decrease) in cash	$ 314	$ 3,303	$ 1,687	$ (1,991)

Cash Flow from Operating Activities

For the year ended December 31, 2014, cash used in operating activities of $0.2 million was attributable to a net loss of $0.3 million, partially offset by $108,000 in non-cash expenses and a net change of $17,000 in our net operating assets and liabilities. The non-cash expenses consisted of $53,000 of share-based compensation and non-cash interest of $55,000 related to both the convertible notes and to the premium conversion derivative. The change in operating assets and liabilities was primarily attributable to increases in accrued liabilities associated with our increased operating expenses.

For the year ended December 31, 2015, cash used in operating activities of $5.4 million was attributable to a net loss of $9.0 million, partially offset by $2.2 million in non-cash expenses and a net change of $1.4 million in our net operating assets and liabilities. The non-cash expenses consist of $0.3 million of share-based compensation, non-cash interest of $0.8 million related to both the convertible notes and to the premium conversion derivative, $0.9 million related to a non-cash purchase of acquired in-process research and development pursuant to the issuance of common stock and $0.2 million related to a non-cash loss on extinguishment of convertible notes. The change in operating assets and liabilities was

attributable to increases in accounts payable and accrued liabilities associated with our increased operating expenses.

For the three months ended March 31, 2015, cash used in operating activities of $0.6 million was attributable to a net loss of $2.3 million, partially offset by $1.6 million in non-cash expenses and a net change of $39,000 in our net operating assets and liabilities. The non-cash expenses consisted of $23,000 of share-based compensation, non-cash interest expense of $0.7 million related to both the convertible notes and to the premium conversion derivative, and $0.9 million related to a non-cash purchase of acquired in-process research and development pursuant to the issuance of common stock. The change in operating assets and liabilities was attributable to increases in accounts payable and accrued liabilities associated with our increased operating expenses.

For the three months ended March 31, 2016, cash used in operating activities of $2.1 million was attributable to a net loss of $2.1 million coupled primarily with $(4,000) in non-cash income adjustments and a net increase of $52,000 in our net operating liabilities. The non-cash (income) expenses consisted of $123,000 of share-based compensation offset by non-cash interest income of $127,000 related to both the convertible notes and to the premium conversion derivative. The change in operating assets and liabilities was primarily attributable to a net increase in accrued liabilities associated with fluctuations in our operating expense payments.

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, 2014 was $0.5 million, consisting of $0.4 million in proceeds from the issuance of convertible notes and $0.1 million in proceeds received from the issuance of promissory notes.

Net cash provided by financing activities was $8.7 million during the year ended December 31, 2015. Net cash provided by financing activities during the year ended December 31, 2015 consisted of $1.5 million in proceeds from the issuance of Series A preferred stock and $7.4 million in proceeds from the issuance of convertible notes, offset by financing costs of $0.2 million associated with the proposed initial public offering.

Net cash provided by financing activities was $2.3 million during the three months ended March 31, 2015 and consisted of $0.3 million in proceeds from the issuance of Series A preferred stock and $2.0 million in proceeds from the issuance of convertible notes.

Net cash provided by financing activities during the three months ended March 31, 2016 was $65,000 consisting of $0.2 million in proceeds from the issuance of convertible notes in February 2016 offset in part by financing costs of $86,000 associated with the proposed initial public offering.

Liquidity and Capital Resource Requirements

We have no current source of revenue to sustain our present activities, and we do not expect to generate revenue until, and unless, the FDA or other regulatory authorities approve gemcabene and we successfully commercialize gemcabene. Until such time, if ever, as we can generate substantial product revenue, 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. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of our 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. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through collaborations, strategic alliances or licensing arrangements with

pharmaceutical partners, we may have to relinquish valuable rights to our technologies, future revenue streams or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings or through collaborations, strategic alliances or licensing arrangements when needed, we may be required to delay, limit, reduce or terminate our product development, future commercialization efforts, or grant rights to develop and market gemcabene that we would otherwise prefer to develop and market ourselves.

Future Capital Requirements

Our independent registered public accounting firm included an explanatory paragraph in its report on our financial statements as of and for the years ended December 31, 2014 and 2015, noting the existence of substantial doubt about our ability to continue as a going concern. This uncertainty arose from management's review of our results of operations and financial condition and its conclusion that, based on our operating plans, we did not have sufficient existing working capital to sustain operations through December 31, 2016. To continue to fund operations, we will need to raise capital in addition to the net proceeds of this offering. We may obtain additional financing in the future through the issuance of our common stock, through other equity or debt financings or through collaborations or partnerships with other companies. We may not be able to raise additional capital on terms acceptable to us, or at all, and any failure to raise capital as and when needed could compromise our ability to execute on our business plan.

We believe that the net proceeds from this offering, together with cash on hand of $1.6 million at March 31, 2016, will be sufficient to fund our operations for at least the next 24 months, including our planned EOP2 meetings with the FDA. We expect that we will need at least an additional $100 million to fund our operations and the development of gemcabene through such time as we receive approval of an NDA for gemcabene for one or more of the targeted indications, if such approval is ever received and exclusive of any outcomes trials.

The development of gemcabene is subject to numerous uncertainties, and we have based these estimates on assumptions that may prove to be substantially different than we currently anticipate and could use our cash resources sooner than we expect. 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. Our ability to successfully transition to profitability will be dependent upon achieving a level of product sales adequate to support our cost structure. We cannot assure you that we will ever be profitable or generate positive cash flow from operating activities.

Furthermore, we will need to raise additional capital to continue to fund the further development of gemcabene and other potential product candidates, our operations, and commercialization of gemcabene and other potential product candidates, if approved.

Contractual Obligations and Commitments

The following table summarizes our contractual obligations as of December 31, 2015, which represent material expected or contractually committed future obligations.

	Payments Due by Period				
	Less than 1 year	1-3 Years	3-5 Years	More than 5 years	Total
			(in thousands)		
Convertible notes	$ 6,424	$ —	$ —	$ —	$ 6,424
Total	$ 6,424	$ —	$ —	$ —	$ 6,424

We lease a facility under a fixed cancellable operating lease effective on January 1, 2015 that, as amended, expires on December 31, 2016. We plan to terminate this lease in August 2016. In May 2016, we entered into a 3 year non-cancellable facility lease commencing August 1, 2016 and made an initial payment of approximately $91,000, $75,000 of which will be treated as prepaid rent following this offering. The initial term of the agreement is three years with an initial monthly base rent of approximately $8,400. Additionally, in the course of our normal operations, we have entered into cancellable purchase commitments with our suppliers for various key research and clinical services and raw materials. The purchase commitments covered by these arrangements are subject to change based on our research and development efforts.

In April 2011, we entered into a license agreement with Pfizer (the Pfizer Agreement) for a worldwide exclusive license to certain patent rights to make, use, sell, offer for sale and import the clinical product candidate gemcabene. In exchange for this license, we agreed to issue shares of our common stock to Pfizer representing 15% of our fully diluted capital at the close of our first arms-length Series A financing, which occurred in March 2015.

We agreed to make milestone payments totaling up to $37 million upon the achievement of certain milestones, including the first regulatory submission 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 or any product containing 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.

We have 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 expiration of the last valid claim of the licensed patent rights, including any patent term extensions or supplemental protection certificates. The royalty rates range from the high single digits to the low teens depending on the level of net sales. Under the Pfizer Agreement we are obligated to use commercially reasonable efforts to develop and commercialize gemcabene.

The Pfizer Agreement will expire upon expiration of the last royalty term. Either party may terminate the Pfizer Agreement for the other party's uncured material breach and specified bankruptcy events. Pfizer may terminate the Pfizer Agreement if we or any of our sublicensees challenge the validity, enforceability or ownership of the licensed patents. Additionally, Pfizer may revoke the license if we are unable to adequately commercialize gemcabene by April 2021.

As of March 31, 2016, no obligations were recorded related to the Pfizer Agreement due to the inability to reasonably estimate the timing and outcomes of the gemcabene trials as well as the timing and amounts of future sales of gemcabene, if any.

Upon the issuance of our Series A preferred stock in March 2015, the Series A preferred stockholders effectively receive cumulative accruing dividends at a simple rate of 8% per year on the original issue price of the preferred stock. The dividends are payable upon the earliest to occur of (1) the date determined by our board of directors, (2) our liquidation (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 our board reasonably believes that we are not legally able to pay the dividends in cash at the payment date, or if the dividends are paid upon the conversion of the Series A preferred in connection with our first firm commitment underwritten public offering of its common stock, the dividends shall be paid in shares of common stock at the conversion price for the Series A preferred stock in effect at that time, which is 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 are payable upon a contingent event, we have not recorded them our financial statements. At March 31, 2016, cumulative unpaid dividends for the

Series A preferred stock totaled $0.4 million, which shall become payable in shares of common stock immediately prior to the closing of this offering.

On July 31, 2015, December 11, 2015, February 25, 2016 and April 14, 2016 we issued convertible notes as discussed above under "— Liquidity and Capital Resources — Historical Capital Resources" pursuant to which certain investors agreed to loan us approximately $2.8 million, $2.7 million, $0.2 million and $5.0 million, respectively. The convertible notes accrue interest at a rate of 8% per annum, compounded annually, and automatically convert into equity upon the occurrence of certain events, including the consummation of this offering. The outstanding principal and accrued interest on the convertible notes as of May 2, 2016 was $10.9 million.

Critical Accounting Policies and Estimates

Our financial statements are prepared in accordance with GAAP. These accounting principles require us 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. We believe that the estimates and judgments upon which we rely are reasonably based upon information available to us at the time that we make these estimates and judgments. To the extent that there are material differences between these estimates and actual results, our financial results will be affected. The accounting policies that reflect our more significant estimates and judgments and which we believe are the most critical to aid in fully understanding and evaluating our reported financial results are described below.

The following is not intended to be a comprehensive list of all of our accounting policies or estimates. Our accounting policies are more fully described in Note 2 — *Summary of Significant Accounting Policies*, in our audited financial statements included elsewhere in this prospectus.

Income Taxes

We utilize 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 we have incurred operating losses to date, and a full valuation allowance has been provided on the net deferred tax assets. MLT was treated as a partnership for federal and state income tax purposes. Accordingly, no provision was made for income taxes for periods prior to October 30, 2014, since the net losses incurred up to that time (subject to certain limitations) was passed through to the income tax returns of its members. Upon incorporation on October 30, 2014 we became taxable as a corporation.

Since incorporation, we have filed U.S. federal and Michigan state income tax returns. Our deferred tax assets were primarily comprised of federal and state tax net operating loss carryforwards, acquired intangibles and tax credit carryforwards and were recorded using enacted tax rates expected to be in effect in the years in which these temporary differences are expected to be utilized. As of December 31, 2014, the tax effect of our federal and state net operating loss carryforwards was approximately $83,000 and $10,000, respectively, and our federal research and development credit carryforward was $114. As of December 31, 2015, the tax effect of our federal and state net operating loss carryforwards was approximately $2.4 million and $0.3 million, respectively, and our federal research and development credit carryforward was $95,000. As of March 31, 2016, the tax effect of our federal and state net operating loss carryforwards was approximately $3.1 million and $0.4 million, respectively, and our federal research and development credit carryforward was $125,000. We did not have any state research and development credit carryforwards. The federal net operating loss and tax credit carryforwards will begin to expire in 2034 if not utilized. The state net operating loss carryforwards will begin to expire in 2024 if not utilized.

Utilization of the net operating loss and tax credit carryforwards may be subject to an annual limitation due to historical or future ownership percentage change rules provided by the Internal Revenue Code of 1986, as amended, and similar state provisions. The annual limitation may result in the expiration of certain net operating loss and tax credit carryforwards before their utilization. However, due to uncertainties surrounding our ability to generate future taxable income to realize these tax assets, a full valuation allowance has been established to offset our deferred tax assets.

Convertible Preferred Stock

We initially record preferred stock that may be redeemed at the option of the holder, or based on the occurrence of events outside our control, in mezzanine equity at the value of the proceeds received. Subsequently, if it is probable that the preferred stock will become redeemable, we recognize changes in the redemption value immediately as they occur and adjust 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, we do 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.

Share-Based Compensation

Our share-based compensation for share-based awards is accounted for in accordance with authoritative guidance and is estimated at the grant date based on the fair value of the award and recognized as expense ratably over the requisite vesting period of the award, net of estimated forfeitures. Determining the appropriate fair value of share-based awards requires judgment. We calculate the fair value of each award to employees on the date of grant based on the fair value of our common stock. See "— Common Stock Valuation" below.

We calculate the fair value of each stock option award to employees on the date of grant under the Black-Scholes option-pricing model using certain assumptions related to the fair value of our common stock, the option's expected term, our expected stock price volatility, risk free interest rates and our expected dividend rate.

For options to purchase common stock issued to non-employees, including consultants, we record share-based compensation based on the fair value of the options. We calculate the fair value of each share-based award to non-employees on each measurement date based on the fair value of our common stock. The fair value of options granted to non-employees is remeasured as the options vest and is recognized in the statements of operations during the period the related services are rendered.

The fair value of each stock option grant was determined using the methods and assumptions discussed below. Each of these inputs is subjective and generally requires significant judgment and estimation by management.

- *Fair Value of Common Stock.* As discussed below in "— Common Stock Valuation," because there is no public market for our common stock as we are a private company, our board of directors has determined the fair value of the common stock by considering a number of objective and subjective factors, including based on contemporaneous valuations of our common stock performed by an unrelated valuation specialist. The fair value of our common stock will be determined by our board of directors until such time as our common stock is listed on an established stock exchange.

- *Expected Term.* The expected term represents the period that share-based awards are expected to be outstanding. The expected term for option grants is determined using the simplified method. The simplified method deems the term to be the average of the time-to-vesting and the contractual life of the share-based awards. The expected term for options issued to nonemployees is the contractual term.

- *Expected Volatility.* Since we do not have a trading history of our common stock, the expected volatility was derived from the historical stock volatilities of comparable peer public companies within our industry that we consider to be comparable to our business over a period equivalent to the expected term of the share-based awards.

- *Risk-Free Interest Rate.* The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the date of grant for zero-coupon U.S. Treasury notes with maturities approximately equal to the share-based awards' expected term.

- *Expected Dividend Rate.* The expected dividend is zero as we have not paid and do not anticipate paying any dividends on our common stock for the foreseeable future.

- *Forfeiture Rate.* The forfeiture rate is estimated based on an analysis of actual forfeitures. Management will continue to evaluate the adequacy of the forfeiture rate based on actual forfeiture experience, analysis of employee turnover behavior and other factors. The impact from any forfeiture rate adjustment would be recognized in full in the period of adjustment and if the actual number of future forfeitures differs from management's estimates, we might be required to record adjustments to share-based compensation in future periods.

The estimated grant-date fair value of our share-based awards was calculated using Black-Scholes option-pricing model, based on the following assumptions for the following periods presented:

	Year Ended December 31,		Three Months Ended March 31,
	2014	2015	2016
Expected volatility	—	71.0%	—
Expected term (in years)	—	5.5	—
Expected dividend rate	—	0%	—
Risk-free interest rate	—	1.7%	—

If any of the assumptions used in the Black-Scholes option-pricing model change significantly, share-based compensation for future awards may differ materially compared with the awards granted previously.

For 2014 and 2015, share-based compensation was $53,000 and $0.3 million, respectively. For the three months ended March 31, 2015 and 2016, share-based compensation expense was $23,000 and $123,000, respectively. As of March 31, 2016, we had unrecognized share-based compensation expense totaling $0.4 million, $14,000 of which we will recognize upon the vesting of certain awards that are expected to vest upon the closing of this offering.

Based upon assumed initial public offering price of $12.00 per share, the mid-point of the estimated price range set forth on the cover page of this prospectus, the aggregate intrinsic value of options outstanding as of March 31, 2016 was approximately $2.9 million, of which approximately $1.4 million related to vested options and approximately $1.5 million related to unvested options.

Common Stock Valuation

In the absence of a public trading market for our common stock, on each grant date, we develop an estimate of the fair value of our common stock in order to determine an exercise price for each share-based award. We have determined the fair value of our common stock using methodologies, approaches and assumptions consistent with the *American Institute of Certified Public Accountants Practice Aid, Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. Our board of directors exercised reasonable judgment and considered a number of objective and subjective factors to determine the best estimate of the fair value of our common stock, including having contemporaneous and retrospective valuations of our common stock performed by an unrelated valuation specialist, valuations of comparable securities transactions, sales of our convertible preferred stock to unrelated third parties, the rights, preferences and privileges of our common stock versus our preferred stock, our operating and financial

performance, our stage of development, current business conditions, our projections, business developments, the lack of liquidity of our capital stock and general and industry specific economic outlook.

For our common stock valuations performed from November 1, 2014 up until the issuance of our Series A convertible preferred stock (the Series A preferred stock) in March 2015, the fair value of our common stock was estimated entirely using a hybrid of two market approaches, specifically a proposed Series A preferred stock *Securities Transaction — Backsolve* method and the Series A preferred stock post-money value. This later approach considers the implied equity value based on a common equivalent capitalization table associated with an IPO exit.

Once the Series A preferred stock round was consummated in March 2015, common stock valuations began to rely on the indications of value realized in the transaction through June 30, 2015. The fair value of our common stock was estimated using a hybrid of two market approaches, specifically the realized Series A preferred stock *Recent Securities Transaction — Backsolve* method and the Series A preferred stock post-money value. This later approach considers our implied equity value based on a common equivalent capitalization table associated with an IPO exit.

Beginning in the third quarter of 2015, the fair value of our common stock was estimated using a hybrid of two market approaches, specifically the value of a potential Series B convertible preferred stock financing utilizing a *Proposed Securities Transaction — Backsolve* method and the value of a potential Series B financing post-money as a common stock equivalent for an IPO exit. Lastly, the completed Series A preferred stock *Recent Securities Transaction — Backsolve* method was considered in the event that a Series B convertible preferred stock financing or an IPO could not be achieved.

Beginning in the fourth quarter of 2015 and through the first quarter of 2016, the fair value of our common stock was estimated using a hybrid of two market approaches, specifically the value of a potential Series B convertible preferred stock financing utilizing a *Proposed Securities Transaction — Backsolve* method and a pre-money IPO value for an IPO exit. Lastly, the completed Series A preferred stock *Recent Securities Transaction — Backsolve* method was considered in the event that a Series B convertible preferred stock financing or an IPO could not be achieved.

We considered the various methods for allocating the enterprise value across our classes and series of capital stock to determine the fair value of our common stock at each valuation date. The methods we used consisted of the following:

- *Option pricing method (OPM).* Under the option pricing method, shares are valued by creating a series of call options with exercise prices based on the liquidation preferences and conversion terms of each equity class. The values of the preferred and common stock are inferred by analyzing these options.

- *Probability-weighted expected return method (PWERM).* The PWERM is a scenario-based analysis that estimates the value per share based on the probability-weighted present value of expected future investment returns, considering each of the possible outcomes available to us, as well as the economic and control rights of each share class.

Our per share common stock value was estimated by allocating the equity value using a hybrid combination of OPM and PWERM. We used either PWERM or a combination of the OPM and the PWERM as described above to allocate the equity value to each element of our capital structure, including our common stock. For both approaches, we applied a discount to the valuations due to the lack of marketability of the ordinary shares. We calculated the discount for lack of marketability using a Finnerty model and applied it as appropriate to each allocation.

The dates of our valuations did not always coincide with the dates of our option grants. In such instances, management's estimates were based on the most recent valuation of shares of our common stock. For grants occurring between valuation dates, for financial reporting purposes, we considered the preceding

valuations and our assessment of additional objective and subjective factors we believed were relevant as of the grant date to determine the fair value of our common stock.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have any off-balance sheet financing arrangements. In addition, we did not have during the periods presented, and we do not currently have any interest in entities referred to as variable interest entities, which includes special purpose entities and other structured finance entities.

Recent Accounting Pronouncements

In July 2013, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2013-11, *Income Taxes — Topic 740*, which is an amendment to the accounting guidance on income taxes. This guidance provides clarification on the financial statement presentation of an unrecognized benefit when a net operating loss carryforward, a similar tax loss, or a tax credit carryforward exists. The amendment was effective for us for interim and annual periods beginning after December 15, 2013, with early adoption permitted. The adoption of this standard did not have a material impact on our financial statements.

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 2015 the FASB agreed to allow companies to delay the implementation of this standard for one year effective for annual reporting periods beginning after December 15, 2017, including interim periods within that reporting period. Early application is permitted only for periods beginning after December 15, 2016. We are evaluating its implementation method and the impact of adopting this prospective guidance on our financial statements.

In June 2014, the FASB issued ASU 2014-10, *Elimination of Certain Financial Reporting Requirements, including an Amendment to Variable Interest Entities Guidance in Topic 810, Consolidation*. This guidance removed all incremental financial reporting requirements from GAAP for development stage entities, thereby improving financial reporting by eliminating the cost and complexity associated with providing that information. The effective date of the amendment is staggered for public and nonpublic entities with the first date being for annual periods beginning after December 15, 2014, with early adoption permitted for financial statements that have not yet been issued or available to be issued. We elected to adopt this standard early to take effect in the financial statements and related notes appearing elsewhere in this prospectus.

In June 2014, the FASB issued ASU 2014-12, *Compensation — Stock Compensation (Topic 718): Accounting for Share-Based Payments When the Terms of an Award Provide That a Performance Target Could Be Achieved after the Requisite Service Period* (ASU 2014-12). The amendments in ASU 2014-12 require that a performance target that affects vesting and that could be achieved after the requisite service period be treated as a performance condition. A reporting entity should apply existing guidance in ASC 718, as it relates to awards with performance conditions that affect vesting to account for such awards. The amendments in ASU 2014-12 are effective for annual periods and interim periods within those annual periods beginning after December 15, 2015. Early adoption is permitted. Entities may apply the amendments in ASU 2014-12 either: (1) prospectively to all awards granted or modified after the effective date; or (2) retrospectively to all awards with performance targets that are outstanding as of the beginning of the earliest annual period presented in the financial statements and to all new or modified awards thereafter. The adoption of this standard did not have a material impact on our financial statements.

In August 2014, the FASB issued Accounting Standards Update No. 2014-15, *Presentation of Financial Statements — Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern* (ASU 2014-15), which requires management to evaluate, in connection with preparing financial statements for each annual and interim reporting period, whether there are conditions or events, considered in the aggregate, that raise substantial doubt about an entity's ability to continue as a going concern within one year after the date that the financial statements are issued (or within one year after the date that the financial statements are available to be issued when applicable) and provide related disclosures. ASU 2014-15 is effective for the annual period ending after December 15, 2016, and for annual and interim periods thereafter. Early adoption is permitted. We elected to adopt this standard early to take effect in the financial statements and related notes appearing elsewhere in this prospectus.

In January 2015, the FASB issued ASU 2015-01, *Income Statement — Extraordinary and Unusual Items* (ASU 2015-01). ASU 2015-01 eliminates from GAAP the concept of extraordinary items. As a result, an entity will no longer be required to separately present an extraordinary item on its statement of comprehensive loss, net of tax, after income from continuing operations, or disclose income taxes and net income per share data applicable to an extraordinary item. However, ASU 2015-01 will still retain the presentation and disclosure guidance for items that are unusual in nature and occur infrequently. ASU 2015-01 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2015. Early adoption is permitted provided the guidance is applied from the beginning of the fiscal year of adoption. The adoption of this standard did not have a material impact on our financial statements, absent any material transactions in future periods that would qualify for extraordinary item presentation under the prior guidance.

In April 2015, the FASB issued ASU 2015-03, *Interest — Imputation of Interest* (ASU 2015-03). ASU 2015-03 requires that debt issuance costs related to a recognized debt liability be presented in the balance sheet as a direct deduction from the carrying amount of that debt liability, consistent with debt discounts. The recognition and measurement guidance for debt issuance costs are not affected by the amendments in this update. For public entities, ASU 2015-03 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2015. The adoption of this standard did not have a material impact on our financial statements.

In November 2015, the FASB issued ASU 2015-17, *Income Taxes (Topic 740): Balance Sheet Classification of Deferred Taxes* (ASU 2015-17). The new guidance simplifies the presentation of deferred income taxes by requiring that deferred tax liabilities and assets be classified as noncurrent in a classified statement of financial position. ASU 2015-17 applies to all entities that present a classified statement of financial position. The current requirement that deferred tax liabilities and assets of a tax-paying component of an entity be offset and presented as a single amount is not affected by this ASU. For public entities, ASU 2015-17 is effective for financial statements issued for annual periods beginning after December 15, 2016 with earlier application permitted. The new guidance may be applied either prospectively or retrospectively to all periods presented. We are evaluating our implementation method and the impact of adopting this prospective guidance on our financial statements.

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. We are currently evaluating the impact of the new guidance on our financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. 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 and is to be applied utilizing a modified retrospective approach. We are currently evaluating the new guidance to determine the impact it may have on our financial statements.

In March 2016, the FASB issued ASU 2016-09, *Compensation — Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting*. This ASU simplifies the accounting for share-based payment award transactions including: income tax consequences, classification of awards as either equity or liabilities and classification on the statement of cash flows. This ASU is effective for fiscal years beginning after December 15, 2016, including interim periods within those fiscal years. Early adoption is permitted. We are currently evaluating the requirements of the new guidance and have not yet determined its impact on our financial statements.

Quantitative and Qualitative Disclosures about Market Risk

The market risk inherent in our financial instruments and in our financial position is the potential loss arising from adverse changes in interest rates. As of December 31, 2015, we had cash and cash equivalents of $3.6 million. We generally hold our excess cash in interest-bearing money market accounts. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. Due to the short-term maturities of our cash equivalents and the low risk profile of our investments, an immediate 100 basis point change in interest rates would not have a material effect on the fair market value of our cash equivalents.

JOBS Act Accounting Election

The Jumpstart Our Business Startups Act of 2012 permits emerging growth companies such as us to delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

BUSINESS

Overview

We are 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. Dyslipidemia is generally characterized by an elevation of low-density lipoprotein cholesterol (LDL-C), or bad cholesterol, triglycerides, or fat in the blood, or both. We are developing our product candidate gemcabene (CI-1027), a novel, once-daily, oral therapy, for patients who are unable to achieve normal levels of LDL-C or triglycerides with currently approved therapies, primarily statin therapy. Gemcabene's dual mechanism of action is designed to enhance the clearance of very low-density lipoproteins (VLDLs) in the plasma and inhibit the production of fatty acids and cholesterol in the liver. Gemcabene is liver-directed and inhibits apolipoprotein C-III (apoC-III) protein in the liver and may inhibit acetyl-CoA carboxylase (ACC) in the liver. Gemcabene has been tested as monotherapy and in combination with statins and other drugs in 895 subjects, which we define as healthy volunteers and patients, across 18 Phase 1 and Phase 2 clinical trials and has demonstrated promising evidence of efficacy, safety and tolerability.

Cardiovascular disease is a major health concern, causing more deaths globally than any other disease. Dyslipidemia is generally viewed as an important predictor of cardiovascular events including heart attack and stroke, and a cause of cardiovascular disease. It comprises one of the largest therapeutic areas with annual worldwide drug sales of approximately $22 billion in 2013. We estimate more than 40% of Americans have LDL-C or triglycerides, or both, above a normal range. Statins, such as Lipitor, marketed by Pfizer Inc. (Pfizer), and Crestor, marketed by AstraZeneca Pharmaceuticals LP (AstraZeneca), among others, are standard of care for LDL-C lowering, while fibrates, prescription fish oils and niacin are standard of care for triglyceride lowering. Although these drugs are highly prescribed and capable of reducing LDL-C and triglyceride levels, many patients are unable to effectively manage their dyslipidemia with currently approved therapies and are in need of better treatment alternatives. For example, approximately 40% of patients on statins are unable to meet their LDL-C lowering goal, and doubling a statin dose has shown to incrementally lower LDL-C levels by a nominal percentage (approximately 6% based on historical evidence), while increasing safety and tolerability concerns. An even higher percentage of patients with severe hypertriglyceridemia do not achieve triglyceride levels low enough to reduce the risk of developing co-morbidities such as pancreatitis.

We believe gemcabene possesses a differentiated product profile compared to other therapies in the market and in clinical development. Key attributes of our product candidate include the following:

- **Cost-effective, once-daily, oral therapy.** Gemcabene is a small molecule formulated as a tablet and is cost effective to manufacture. As a once-daily, oral therapy, gemcabene, if approved, would be more convenient than other non-statin therapies, many of which require frequent injections or multiple daily doses. We expect to take a value-based approach to pricing across the target indications.

- **Promising safety and tolerability.** Gemcabene was observed to be well tolerated in 895 subjects across 18 Phase 1 and Phase 2 trials both as monotherapy and in combination with statins. No subjects died and no subjects experienced a serious adverse event (SAE) that was considered to be related to gemcabene. Adverse events (AEs) reported were generally mild to moderate in intensity. Gemcabene did not appear to increase the reporting of myalgia (muscle pain) when added to statin therapy and no treatment related events of myalgia were reported in any gemcabene monotherapy arm in the dyslipidemia trials.

- **Significant lipid-lowering of LDL-C, high-sensitivity C-reactive protein (hsCRP) and triglycerides.** In Phase 2 trials, patients with hypercholesterolemia treated with gemcabene as monotherapy were observed to have significantly lowered LDL-C by approximately 30% from baseline and significantly lowered hsCRP by approximately 40% from baseline. In addition, patients with hypertriglyceridemia (³200 mg/dL) were observed to have significantly lowered triglycerides by approximately 40%, and

based on post-hoc analysis, gemcabene was observed to lower triglycerides by up to 60% in patients with severe triglyceride levels (³500 mg/dL). Our product candidate's ability to meaningfully lower levels of multiple key lipids attributable to cardiovascular disease may expand its use across multiple indications within the dyslipidemia market.

§ **Additive effect in combination with statins.** In a Phase 2 trial in patients with uncontrolled hypercholesterolemia while on stable statin therapy, gemcabene was observed to significantly lower LDL-C by an additional 25% to 31% from baseline. This data indicates that gemcabene may better treat a large population of patients who are unable to reach their lipid goal with statins and other currently prescribed therapies.

§ **No drug-drug interactions when combined with high-intensity statin doses.** In two Phase 1 trials, gemcabene was tested in combination with high-intensity statin doses, 80 mg simvastatin and 80 mg atorvastatin. No clinically relevant drug-drug interactions were observed. In addition, gemcabene has been formulated as a fixed-dose combination tablet with various atorvastatin doses, which may offer additional convenience and compliance to patients.

We are initially pursuing gemcabene in the following four indications (representing approximately 14 million addressable patients in the United States) as a treatment in addition to maximally tolerated statin therapy for patients who are unable to reach their lipid-lowering goals:

§ homozygous familial hypercholesterolemia (HoFH), a rare genetic lipid disorder which results in elevated LDL-C usually due to mutations in both alleles, a pair of genes on a chromosome responsible for a specific trait, of the LDL-receptor gene;

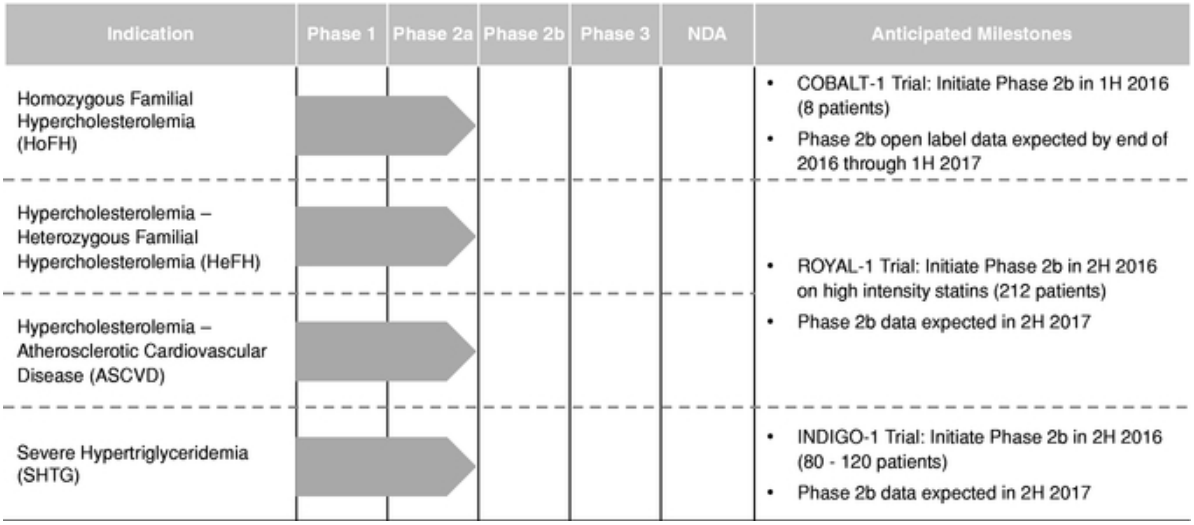
§ heterozygous familial hypercholesterolemia (HeFH), a more prevalent genetic lipid condition which results in elevated LDL-C usually due to a mutation in one allele of the LDL-receptor gene;

§ atherosclerotic cardiovascular disease (ASCVD), patients with hypercholesterolemia, or patients with elevated LDL-C who have had or are at risk for a cardiovascular event, such as heart attack or stroke; and

§ severe hypertriglyceridemia (SHTG), in which patients with elevated triglycerides are at an increased risk of developing co-morbidities such as pancreatitis.

We are pursuing HoFH given that gemcabene has recently received orphan drug designation for this indication. We believe we can design an efficient development plan to provide a new treatment alternative for those patients. Furthermore, we believe that gemcabene's potential ability to treat patients in the most severe segment of the dyslipidemia market, HoFH, will enhance brand awareness among key thought leaders and physicians. We are developing gemcabene for HeFH, ASCVD and SHTG given gemcabene's: (1) promising clinical data in these indications; (2) cost-effective manufacturing process; (3) convenient oral dosing; (4) viability as adjunct combination therapy; and (5) large commercial potential. By the end of 2016, we expect to initiate three late stage clinical trials for gemcabene in HoFH, hypercholesterolemia, including HeFH and ASCVD patients on maximally tolerated statins, and SHTG.

Gemcabene Pipeline Indications



Upon completion of one or more of our trials, we intend to request one or more End of Phase 2 (EOP2) meetings with the U.S. Food and Drug Administration (FDA) to reach an agreement on the design of Phase 3 registration trials and long-term safety exposure for our target indications. We intend to pursue similar discussions with Canadian and European health authorities.

We believe it is unlikely the FDA will require us to initiate a cardiovascular outcomes trial for our target indications. The FDA has not required the initiation or completion of cardiovascular outcomes trials for recent approvals of certain dyslipidemia therapies, including non-statin therapies targeting LDL-C for the treatment of HoFH, HeFH and ASCVD and triglyceride lowering for treatment of SHTG. Cardiovascular outcomes trials require evaluation of cardiovascular clinical conditions in large patient populations over a long period of time and are both costly and time-consuming. However, for commercial and competitive reasons, such as the potential to broaden the label claims, we intend to review with the FDA a design for a cardiovascular outcomes trial which we may initiate before an NDA submission and complete post-approval.

Our company was co-founded by former Pfizer employees, Dr. Charles Bisgaier and David Lowenschuss, who were responsible for licensing exclusive worldwide rights to gemcabene from Pfizer in April 2011. Prior to co-founding the original Esperion Therapeutics, Inc. (Esperion) in 1998, which was acquired by Pfizer in 2004, Dr. Bisgaier worked at Parke-Davis, a division of Warner-Lambert Company from 1990 to 1998, and was instrumental in the discovery and development of gemcabene, as well as the development of Lipitor and Lopid. Many of our employees and consultants have been involved in the historical development of gemcabene and other innovative dyslipidemia product candidates in development, including ETC-216, a synthetic high-density lipoprotein mimetic based on ApoAI-Milano (developed by the original Esperion, Pfizer and currently The Medicines Company), ACP-501 (developed by AlphaCore Pharma, later acquired by AstraZeneca) and ETC-1002 (developed by the original Esperion, Pfizer and the current Esperion). We have organized a medical advisory board including Drs. John Kastelein, Evan Stein, Robert Hegele and Dirk Blom who combined have been involved in numerous dyslipidemia and cardiovascular disease clinical trials (e.g., statins from their earliest trials, fibrates, ezetimibe, cholesteryl ester transfer protein (CETP) inhibitors, extended release niacin, antisense oligonucleotides (mipomersen) and monoclonal antibodies including PCSK9 inhibitors and published numerous research papers. The management team, led by our CEO Mina Sooch, collectively has significant experience in operating and financing biopharmaceutical companies and discovering, developing and commercializing treatments in the cardiovascular and orphan markets.

Our Strategy

Our goal is to become a leading cardio-metabolic biopharmaceutical company that develops and commercializes best-in-class therapies for patients and provides attractive solutions for physicians and payors.

The core elements of our strategy to achieve our goal are the following:

- ***Advance the late-stage clinical development of gemcabene across multiple target indications.*** We are focused on a broad spectrum of indications for dyslipidemia patients ranging from the orphan indication HoFH to more prevalent conditions, such as HeFH, ASCVD and SHTG. The data from our 18 Phase 1 and Phase 2 trials and multiple preclinical studies have provided us with a comprehensive set of information and key insights into gemcabene's mechanism of action, lipid-lowering effects and safety profile. Furthermore, recent approvals of cardiovascular therapies in gemcabene's target indications, such as biologic PCSK9 inhibitors for HoFH, HeFH and ASCVD and prescription fish oils for SHTG have provided us with a better understanding of current FDA views on approval of new dyslipidemia drugs. As a result, we believe that we have identified indications for gemcabene with favorable regulatory pathways and the highest likelihood of commercial success compared to other potential indications for gemcabene. By the end of 2016, we plan to initiate three late stage clinical trials for gemcabene: an 8 patient trial for HoFH, a 212 patient trial for hypercholesterolemia on high-intensity statin therapy including HeFH and ASCVD patients, and a 80 to 120 patient trial for SHTG. We expect early results from these trials starting by the end of 2016 continuing through the second half of 2017.

- ***Expand the breadth of indications beyond dyslipidemia for gemcabene.*** We are also exploring the utility of gemcabene in Nonalcoholic Steatohepatitis (NASH) and/or Nonalcoholic Fatty Liver Disease (NAFLD) given its mechanism of action that decreases the production of the apoC-III protein and may inhibit ACC, which has been observed to result in the lowering of triglycerides in the plasma and may reduce liver fat. We plan to test gemcabene in an established NASH preclinical model for further proof of concept. We will organize the appropriate mid-stage clinical studies.

- ***Pursue oral combination opportunities for gemcabene.*** Oral combination therapy is the current paradigm for the treatment of dyslipidemia, as patients typically require multiple drugs to address their dyslipidemia as well as other co-morbidities. Based on existing data demonstrating additive effects on LDL-C and triglyceride lowering as well as no drug-drug interactions with statins, we believe that gemcabene has the potential to be developed as a fixed-dose combination with low to high dose statins, which, if approved, may enhance adoption in the market and patient compliance. As part of our development strategy, we plan to formulate and manufacture gemcabene in fixed-dose combination with statins and other lipid-lowering agents.

- ***Continue to build out our patent portfolio for gemcabene.*** We believe our patents and patent applications provide us with a significant competitive advantage. As of May 2, 2016, we had 27 issued patents and 23 pending patent applications for gemcabene in the United States and internationally directed to formulations, compositions, methods of use and methods of manufacturing. We intend to aggressively prosecute and defend our patent portfolio and pursue new patents in order to ensure the long term commercial success of gemcabene.

- ***Maximize the global commercial value of gemcabene.*** We have retained all commercial and manufacturing rights to gemcabene. We intend to evaluate our strategic alternatives to collaborate with global biopharmaceutical companies for the development and commercialization of gemcabene. We believe we could independently commercialize gemcabene for the treatment of patients with HoFH in the United States with a targeted sales force and would seek commercial partners outside of the United States. For larger indications, such as HeFH, ASCVD and SHTG, we would assess partnership opportunities for Phase 3 development and the worldwide commercialization of gemcabene.

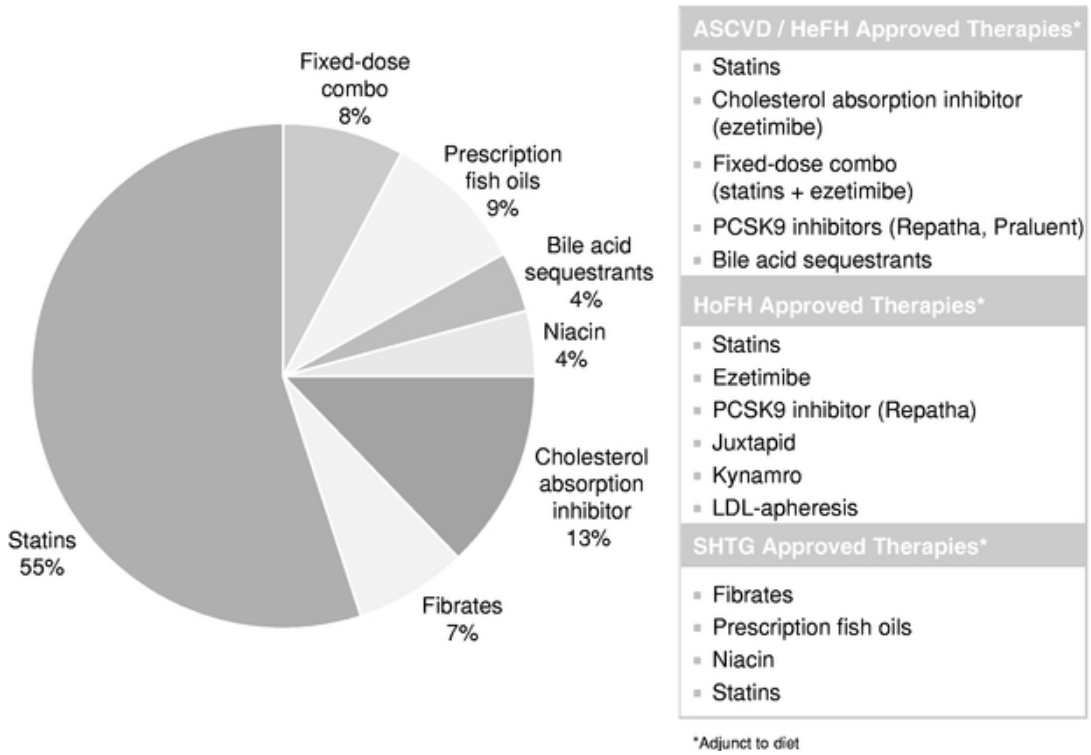
- ***Leverage the expertise and experience of our management team to evaluate future in-licensing and acquisition opportunities.*** Across our leadership team, we have discovered and/or developed Lipitor, Lopid, ETC-1002, ETC-216, ACP-501, CER-209, CER-001 and PNT-2258, and commercialized many lipid regulating and orphan drugs including Crestor, Myalept and Lynparza. Our team is well-qualified to identify and in-license or acquire clinical-stage cardio-metabolic assets, and we intend to evaluate these opportunities to diversify our pipeline and generate long-term growth.

Overview of Dyslipidemia Market

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 a gene are responsible for the elevated LDL-C levels in patients.

Dyslipidemia is characterized by an elevation of LDL-C, triglycerides or both. Dyslipidemia is viewed as an important predictor of cardiovascular events, including heart attack and stroke, and a cause of cardiovascular disease. 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. We estimate from 2013 data that over 33 million patients are prescribed statins, of which a little more than half, or 19 million, are secondary prevention patients.[1] Of these 19 million secondary prevention patients, approximately 10 million are ASCVD patients who are not at 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 $22 billion in worldwide drug sales in 2013 and remains one of the largest therapeutic markets.

Global Dyslipidemia Market
2013 Worldwide Drug Sales of $22 Billion[1]



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Recent Developments in the Dyslipidemia Market

In 2015 there have been key advisory panel meetings and regulatory approvals for non-statin LDL-C lowering drugs. Specifically, Biologics License Applications (BLAs) for two PCSK9 inhibitors have been considered by the FDA and have subsequently been approved in the United States and Europe. We believe these approvals signal the FDA's continued view that LDL-C lowering is an acceptable surrogate endpoint for traditional drug approval in certain lipid indications and that cardiovascular outcomes trials would not be required for such approvals. The FDA however noted that one should accept very little risk from a novel LDL-C-lowering drug when approving for a broad population only based on its effects on LDL-C. The approved PCSK9 products are described below. Their FDA-approved labels indicate that their effects on cardiovascular morbidity and mortality have not yet been determined.

- On August 27, 2015, Repatha, developed by Amgen Inc. (Amgen), was approved in the United States for use along with diet and maximally tolerated statin therapy in adults with HoFH, HeFH and ASCVD, who need additional lowering of LDL-C.

- On July 24, 2015, Praluent, developed by Regeneron Pharmaceuticals, Inc. (Regeneron) and Sanofi-Aventis U.S., LLC (Sanofi), was approved in the United States for use as adjunct to diet and maximally tolerated statin therapy for the treatment of adults with HeFH and ASCVD, who require additional lowering of LDL-C.

- On July 21, 2015 and September 28, 2015, the European Commission approved Repatha and Praluent respectively, each with a broader label compared to that in the United States. The approved indications in Europe included the treatment of adults with primary hypercholesterolemia or mixed dyslipidemia as: (1) combination therapy with maximally tolerated dose of statin or statin and other lipid-lowering drugs; or (2) monotherapy or combination therapy with other lipid-lowering drugs in patients who are statin-intolerant, or for whom statin is contraindicated. Repatha is also approved for the treatment of HoFH in adults and adolescents aged 12 years and over in combination with other lipid-lowering drugs.

In November 2014, at the American Heart Association meeting, Merck & Co., Inc. (Merck) announced data for ezetimibe from its IMPROVE-IT cardiovascular outcomes trial which was conducted over seven years. The data showed that the addition of ezetimibe to 40 mg simvastatin achieved the trial's primary endpoint, reduction in composite outcome events, comprised of cardiovascular death, myocardial infarction (MI), unstable angina requiring hospitalization, coronary revascularization and stroke, by 6.4% more than patients who received simvastatin alone (p=0.016). Overall, there was a significant 10% reduction in the risk of cardiovascular death, nonfatal MI, or nonfatal stroke. Based on data from the IMPROVE-IT trial, ezetimibe is the first nonstatin cholesterol-lowering agent to demonstrate an incremental clinical benefit on top of a statin. According to the Expert Consensus Decision Pathways, which were issued in April 2016 to complement existing American College of Cardiology guidelines, ezetimibe generally is recommended as the initial add-on agent to statin therapy, based upon its demonstrated efficacy in ASCVD risk reduction, tolerability, safety and single tablet daily dose.

In August 2015, current Esperion announced guidance from its EOP2 meeting with the FDA for its LDL-C lowering product candidate, ETC-1002. The press release indicated the FDA's confirmation to Esperion "that LDL-C remains an acceptable clinical surrogate endpoint for the approval of an LDL-C lowering therapy, such as ETC-1002 in patient populations who have a high unmet medical need, including patients with HeFH and ASCVD, who are already taking maximally tolerated statins yet require additional LDL-C reduction and where there is a positive benefit/risk ratio." In September 2015, Esperion announced final minutes from its EOP2 meeting and added "Any concern regarding the benefit/risk assessment of ETC-1002 could necessitate a completed cardiovascular outcomes trial before approval." We believe this report of the EOP2 meeting minutes was consistent with recent PCSK9 drug guidance. A new Phase 2 study of ETC-1002 in combination with high-intensity statins was also added to ETC-1002's development program creating delays in ETC-1002 Phase 3 program. ETC-1002 maintains a dual market strategy: (1) monotherapy for primary patients with statin intolerance, and (2) high risk ASCVD and HeFH patients on maximally tolerated statins. In January 2016, Esperion focused its strategy on the statin intolerant indication and announced it will consider the add-on statin market for ASCVD and HeFH with partners.

In April 2016 at the American College of Cardiology meeting, the GAUSS-3 study was presented, showing strong evidence that muscle-related statin intolerance is a real and reproducible condition. It is estimated that 5 - 20% of patients with high cardiovascular risk refuse to take statins after reporting muscle pain or weakness following statin use.

At the same meeting in April 2016, researchers announced the clinical trial results from ACCELERATE for evacetrapib, the third failure in a class of drugs known as cholesteryl ester transfer protein (CETP) inhibitors, explaining that the clinical trial was discontinued after preliminary analysis showed it did not reduce rates of major adverse cardiovascular events and also showed increased hypertension. The first such drug, torcetrapib, was abandoned in 2006 after a Phase 3 clinical trial revealed it increased the risk of cardiovascular events and death. Development of a second CETP inhibitor, dalcetrapib, was stopped in 2012 when a large Phase 3 clinical trial found the drug to be ineffective. In October 2015, Amgen

acquired Dezima Pharma B.V., a Netherlands-based company with an oral CETP inhibitor in Phase 2 development.

In 2012, Amarin's drug Vascepa (icosapent ethyl) was approved with a triglyceride endpoint as an adjunct to diet to reduce triglyceride levels in adults with SHTG, one of the target indications we are pursuing. In a different patient population in April 2015, the FDA concluded that, for regulatory approval purposes, there are insufficient data at this time from randomized controlled outcomes trials to support a reduction in serum triglycerides as the single surrogate for reducing cardiovascular risk in adult patients on statin therapy with mixed dyslipidemia and high triglycerides (200-499 mg/dL). As a consequence, the FDA did not approve the supplemental NDA (sNDA) for Vascepa. However, in August of 2015, Amarin was granted a favorable ruling and was able to disseminate a summary of the ANCHOR study results as well as the reprints regarding the potential cardioprotective effect of EPA in patients with high triglycerides. In March 2016, the FDA and Amarin proposed a settlement allowing Amarin to engage in truthful and non-misleading speech promoting the off-label use of Vascepa to treat patients with persistently high triglycerides.

As of first quarter 2016, the sales of PCSK9 drugs have been limited post-launch as a result of the high price of the drug and difficulties with reimbursement.

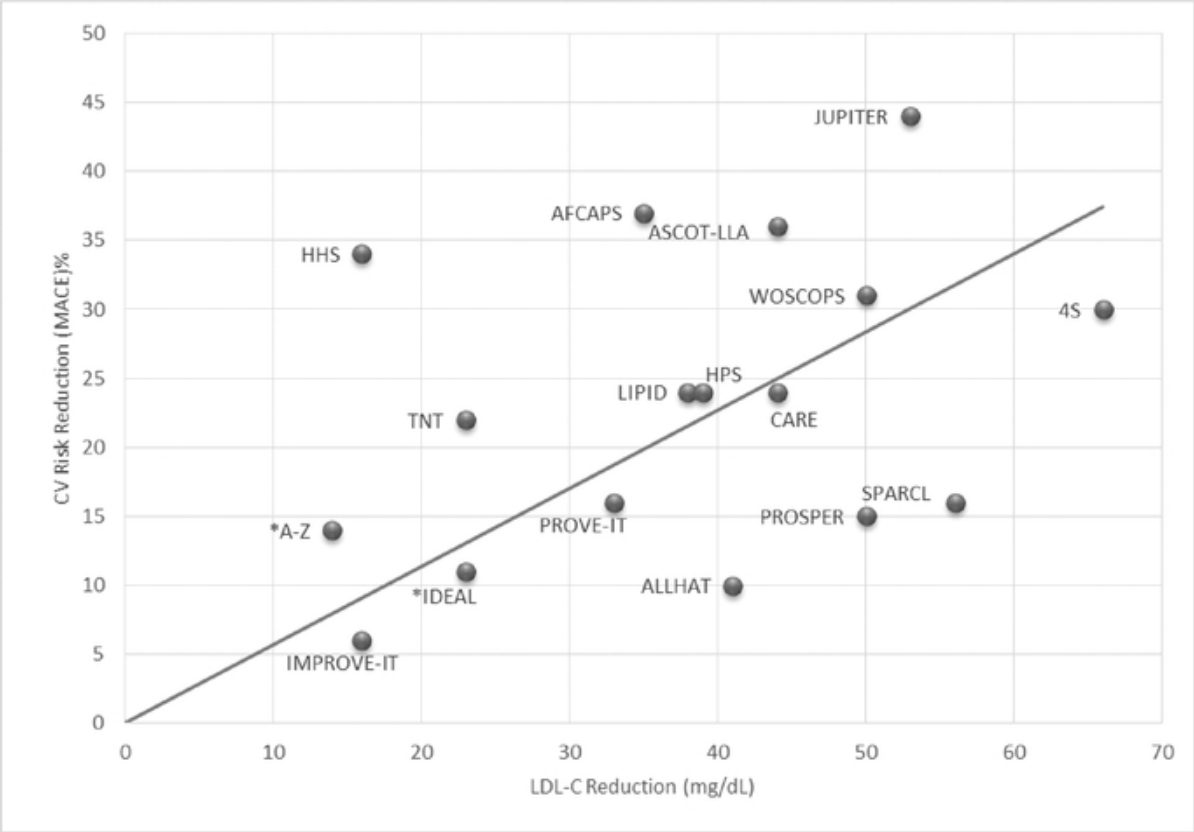
hsCRP Biomarker of Interest

Inflammation plays a significant role in the propagation of atherosclerosis and susceptibility to cardiovascular events. Of the wide array of inflammatory biomarkers that have been studied, hsCRP (or CRP) has received the most attention for its use in risk reclassification of cardiovascular disease. Recently, at the 2015 European Society for Cardiology meeting, Merck presented a post-hoc analysis of the IMPROVE-IT trial which confirmed the importance of lowering both LDL-C and hsCRP levels to below 70 mg/dL and 2 mg/L, respectively, with a 27% relative risk reduction in cardiovascular events occurring in patients that were able to attain target levels compared to those patients who achieved neither of the target levels. These findings support the potential for novel non-statin therapies that can demonstrate clinical efficacy in both LDL-C and hsCRP reduction. Gemcabene's ability to substantially lower hsCRP in conjunction with LDL-C may offer further benefit to the cardiovascular health of patients.

Regulatory Precedents for Approval in Dyslipidemia Indications

Historical data confirm a linear relationship between LDL-C and cardiovascular disease, showing that lower LDL-C levels reduces the risk of mortality and other cardiovascular events (for example, every 39 mg/dL LDL-C lowering results in 24% cardiovascular risk reduction). The chart below by Cholesterol Treatment Trialist's Collaboration (CTT) provides the foundation for this 'LDL-C hypothesis'.

Lowering LDL-C Decreases Cardiovascular Risk
Elevated LDL-C lowering is the #1 Modifiable Risk Factor



Sources: CTT Cholesterol Treatment Trialist's Collaboration and Study Papers for each Trial

CV = Cardiovascular; MACE=Major Adverse Cardiovascular Events

* A-Z p=.14 and IDEAL p=.07

Key For LDL-C Lowering Drug with Successful Trial Results: **Gemfibrozil:** HHS; **Atorvastatin:** IDEAL, TNT, PROVE-IT, ASCOT-LLA, SPARCL; **Pravastatin:** ALLHAT, CARE, PROSPER, LIPID, WOSCOPS; **Simvastatin:** A-Z, HPS, 4S; **Lovastatin:** AFCAPS; **Rosuvastatin:** JUPITER; **Ezetimibe:** IMPROVE-IT.

For nearly three decades (1987 to 2015), the FDA has accepted LDL-C lowering as a surrogate endpoint for reducing cardiovascular risk for *traditional* approval on over 15 lipid-lowering drugs without requirements to initiate or complete a cardiovascular outcomes trial. Traditional approval may be based on surrogate endpoints such as LDL-C and blood pressure that are *known* to predict clinical benefit, by contrast to accelerated approval based on surrogate endpoints that are only *reasonably likely* to predict clinical benefit and require confirmatory evidence of actual benefit after approval. With traditional approval based on LDL-C reduction, the FDA does not have a regulatory mechanism to require any further efficacy trials and does not require sponsors to conduct a post-approval cardiovascular outcomes trial. Sponsors who have chosen to conduct cardiovascular outcomes trials before or after traditional approval, which is encouraged by the FDA, have voluntarily done so to seek additional claims.

In approving drugs, the FDA considers the magnitude of effect in relation to the safety profile. Not only has the use of LDL-C as surrogate marker to predict the risk of cardiovascular events been accepted by the FDA but the importance of LDL-C lowering has also been recognized by clinical organizations such as American College of Cardiology, American Heart Association (AHA), National Cholesterol Education Program Adult

Treatment Panel III (NCEP ATP-III), American Association of Clinical Endocrinologists, and National Lipid Association.

These approvals have occurred over the last decade, as have studies showing that certain LDL-C lowering statin and non-statin drugs did not in fact provide cardiovascular benefits (e.g., Niacin in AIM-HIGH trial) and/or show unexpected safety concerns (e.g., ezetimibe in ENHANCE with cancer). In addition, a class of drugs known as cholesteryl ester transfer protein inhibitors (CETPi) with a different mechanism (which increases high-density lipoprotein cholesterol (HDL-C) while sometimes lowering LDL-C), has 3 drugs that failed Phase 3 cardiovascular outcome trials. The first CETPi drug, Pfizer's torcetrapib, lowered LDL-C but showed increased cardiovascular event rates in patients due to off-target effects in ILLUMINATE, which we believe established a higher FDA standard for cardiovascular outcomes trials for the CETPi class.

In patient populations such as HoFH and SHTG, we believe the FDA recognizes that an outcomes trial would be difficult and as a result has established precedent drug approvals over time based on surrogate endpoints (LDL-C for cardiovascular risk and triglycerides for pancreatitis risk, respectively). Recent examples include Juxtapid (2012) and Kynamro (2013) for HoFH and Vascepa (2012) for SHTG.

In the broader populations HeFH and ASCVD, the FDA recently approved PCSK9 inhibitors based on LDL-C as the surrogate endpoint and did not require the completion of cardiovascular outcomes trial in these high-risk dyslipidemia patients. The FDA approved Praluent and Repatha based on LDL-C reduction as an adjunct to maximally tolerated statin therapy (and diet), but did not approve these drugs for monotherapy or primary patients, noting that such approval may be premature in the absence of cardiovascular outcomes data.

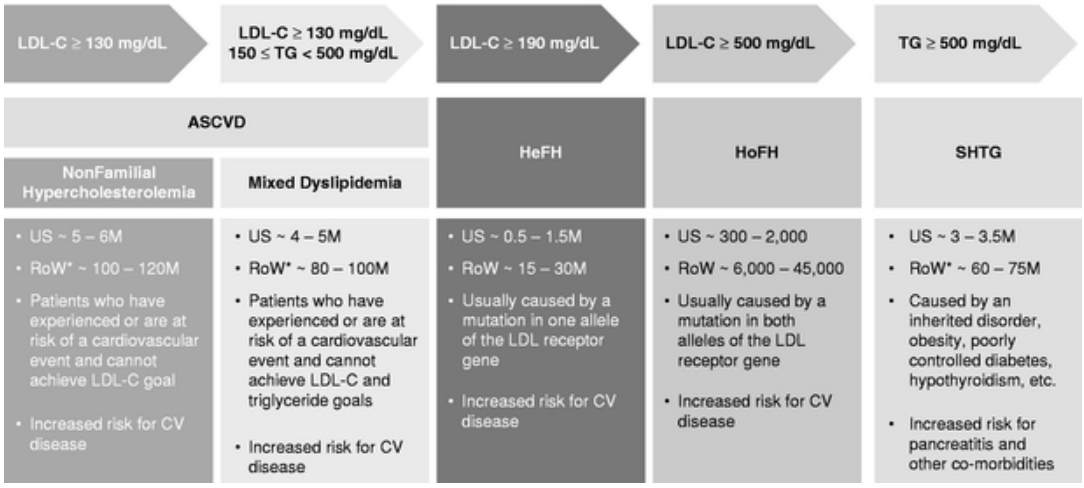
Collectively, recent approvals of new cardiovascular drugs, results from clinical trials of non-statin product candidates, and our recent regulatory guidance that we received from the FDA regarding our development plans have provided us with some assurance that LDL-C lowering product candidates in development, such as gemcabene, will not be required to conduct cardiovascular outcomes trials in the United States and Europe prior to approval for our target indications planned in combination with statins assuming a favorable benefit/risk profile.

Our Target Indications

We are developing gemcabene as a treatment for dyslipidemia patients for whom existing treatments are insufficient. The ATP-III guidelines of the NCEP recommends that individuals at high risk of coronary heart disease maintain LDL-C levels <100 mg/dL, and that individuals with very high risk maintain LDL-C levels <70 mg/dL. In addition, the American College of Cardiology and AHA set treatment-targeted guidelines in 2013 which focus on intensive statin therapy.

Despite approval of new drugs, including injectable PCSK9 inhibitors, we believe physicians, patients and payors continue to seek efficacious, cost-effective add-on therapies. We believe that oral, once-daily gemcabene as an add-on to statin therapy is differentiated by the ability to lower multiple lipids (LDL-C, hsCRP and triglycerides) and, if approved, presents a significant opportunity across multiple indications. These indications span from HoFH to more prevalent conditions, such as HeFH, ASCVD and SHTG, in which therapies are required to reduce elevated levels of LDL-C, triglycerides or both. Our target indications are summarized in the diagram below with a total of approximately 14 million addressable patients in the United States who could be treated with gemcabene, with an even larger number in the rest of world.

Dyslipidemia Market and Total Addressable Patients



Source: Company estimates.

(*) Addressable market for rest of the world (RoW) is estimated by extrapolating from the U.S. addressable market.

Definitions: M=millions, CV=cardiovascular, TG=triglycerides.

Homozygous Familial Hypercholesterolemia (HoFH)

HoFH is a rare genetic disease that is usually caused by a mutation in both alleles of the LDL receptor gene responsible for removing LDL from the blood. As a result, 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 typically 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 issues, 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. We believe that pursuing the HoFH indication may enable gemcabene to reach the market sooner than for other indications due to: (1) approval pathway based on a single, small Phase 3 trial; (2) no requirement for cardiovascular outcomes trials; and (3) potential for priority review by the FDA in light of the unmet medical need in this orphan population. Furthermore, we believe that gemcabene's potential to treat patients in the most severe segment of the dyslipidemia market on top of statins and other lipid-lowering therapies (including ezetimibe and Repatha) will enhance brand awareness among key thought leaders and physicians.

Heterozygous Familial Hypercholesterolemia (HeFH)

The HeFH patient population is generally comprised of individuals who have one defective gene that leads to elevated LDL-C levels between 190 mg/dL and 500 mg/dL. These patients are prone to premature cardiovascular events. The incidence of patients with HeFH is estimated to be between one in 200 and one in 500, and accordingly, we estimate 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.

Current available treatments for HeFH include statins, ezetimibe, bile acid sequestrants and the recently approved injectable PCSK9 inhibitors. Despite the availability of various treatments, many patients are still unable to achieve recommended LDL-C levels. In addition, patients, physicians and payors may prefer more convenient, cost-effective, oral drugs.

We believe obtaining approval for the HeFH indication will enable gemcabene to reach a large market of patients with the inability to attain their LDL-C goal using current therapies (including high-intensity statins, ezetimibe and Repatha). An approval in HeFH would allow gemcabene to be introduced into another indication for very high LDL-C levels and enable physicians globally to have another oral, once-daily, cost-effective, well-tolerated with high intensity statins option in treating this complex patient population, while also lowering LDL-C, hsCRP, and triglycerides.

Atherosclerotic Cardiovascular Disease (ASCVD)

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, have elevated triglyceride levels greater than 150 mg/dL and less than 500 mg/dL, categorized as mixed dyslipidemia. If both cholesterol and triglyceride levels are high, it is difficult for physicians to optimize the right combination of current therapies to reach lipid level goals, as for many patients, lowering the level of one may increase the level of the other. We estimate 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. Of those patients, we estimate that there are more than 1.5 million secondary prevention patients who cannot tolerate any statins at all.

Current available treatments for both primary hypercholesterolemia and ASCVD include statins, ezetimibe, bile acid sequestrants, niacin, fibrates and recently approved PCSK9 inhibitors. While these drugs have demonstrated efficacy in lipid-lowering in this population, some of these do not sufficiently address the patients with mixed dyslipidemia who need to lower both LDL-C and triglycerides.

We believe that there is a meaningful number of underserved ASCVD 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. If gemcabene is approved for this indication, it may potentially offer patients a preferred well-tolerated combination therapy with a statin and/or ezetimibe that is convenient, oral, once-daily, cost effective, and effective in achieving LDL-C, hsCRP and triglyceride goals.

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, we estimate 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 at 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.

We believe that pursuing SHTG may enable gemcabene to reach a large population of patients with triglyceride levels above 500 mg/dL and offer a convenient, oral, once-daily dosing with no food effects that may have the potential to result in better efficacy than standard of care, while being well-tolerated with statins.

Our Product Candidate — Gemcabene

Our 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. We also plan to develop a fixed-dose combination product of gemcabene with atorvastatin to enhance market adoption and maximize the likelihood of commercial success.

We are developing multiple indications for gemcabene, ranging from HoFH, an orphan indication, to more prevalent conditions, such as HeFH, ASCVD and SHTG. By the end of 2016, we plan to initiate three late stage clinical trials for gemcabene: an 8 patient trial for HoFH, a 212 patient trial for hypercholesterolemia on high-intensity statin therapy including HeFH and ASCVD patients, and a 80 to 120 patient trial for SHTG. We expect early results from the first of these trials to start reading out by the end of 2016 and continuing through the second half of 2017.

We licensed global rights to gemcabene from Pfizer in April 2011. We will continue to leverage the extensive preclinical, clinical, manufacturing and formulation work previously conducted to further advance the development of gemcabene.

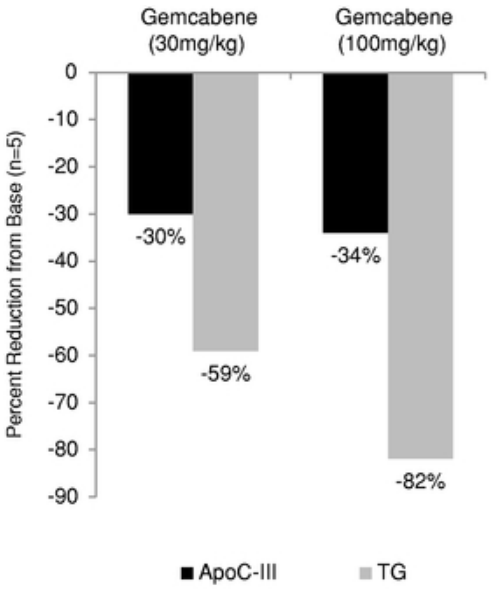
Mechanism of Action

Gemcabene has a mechanism of action that involves: (1) enhancing the clearance of VLDL; and (2) blocking the overall production of hepatic triglyceride and cholesterol synthesis. Based on prior clinical trials, the combined effect for these mechanisms has been observed to result in a reduction of plasma VLDL-C, LDL-C, triglycerides and hsCRP, as well as elevation of HDL-C. Gemcabene-calcium rapidly converts to gemcabene free acid when added to media or administered to animals and humans. Gemcabene distributes to the liver where it has its effect as the active molecule.

(1) Gemcabene enhances the clearance of VLDL by decreasing the production of messenger RNA (mRNA) of the ApoC-III gene, thereby decreasing the production of the apoC-III protein. ApoC-III protein is known to be causal in cardiovascular disease. ApoC-III is a small protein that inhibits hepatic uptake of triglyceride-rich particles such as VLDL. VLDL are catabolized to VLDL remnants in plasma. The VLDL remnants are either cleared from the plasma via remnant receptors or mature to LDL. The reduction in apoC-III exposes Apolipoprotein E (ApoE). ApoE is essential for the normal catabolism of triglyceride-rich particles. This favors the enhanced clearance of the VLDL remnants via ApoE remnant receptors and reduces the formation of LDL particles, while also breaking down triglycerides by lipoprotein lipase to deliver more fatty acids to muscle and adipose tissue. We have observed in preclinical studies that gemcabene significantly clears VLDL in the plasma with corresponding reductions in the liver apoC-III mRNA levels and apoC-III plasma protein levels in

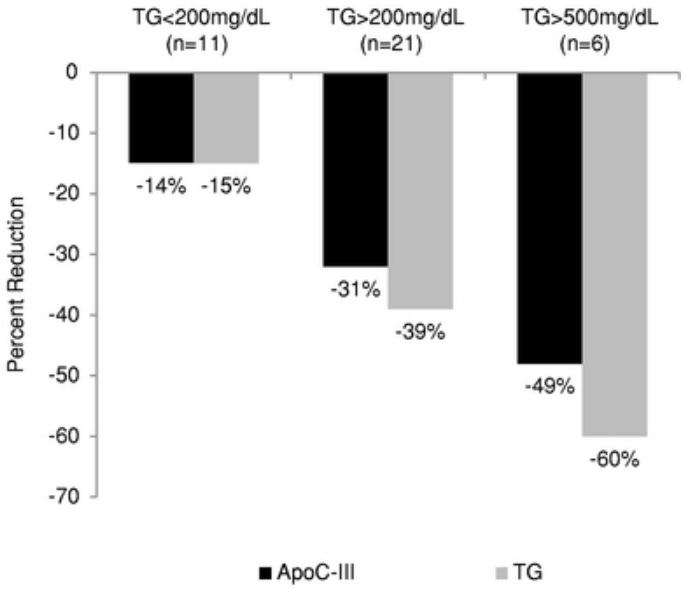
rats. In a hypertriglyceridemic human clinical trial, gemcabene was shown to significantly decrease both apoC-III and triglycerides.

Reduction of Plasma ApoC-III and TG in Rats



Gemcabene Effect on Plasma Triglycerides and Apoliproteins in the Male Sprague-Dawley Rat (One-Week Exposure)

Reduction of Plasma ApoC-III and TG in Humans

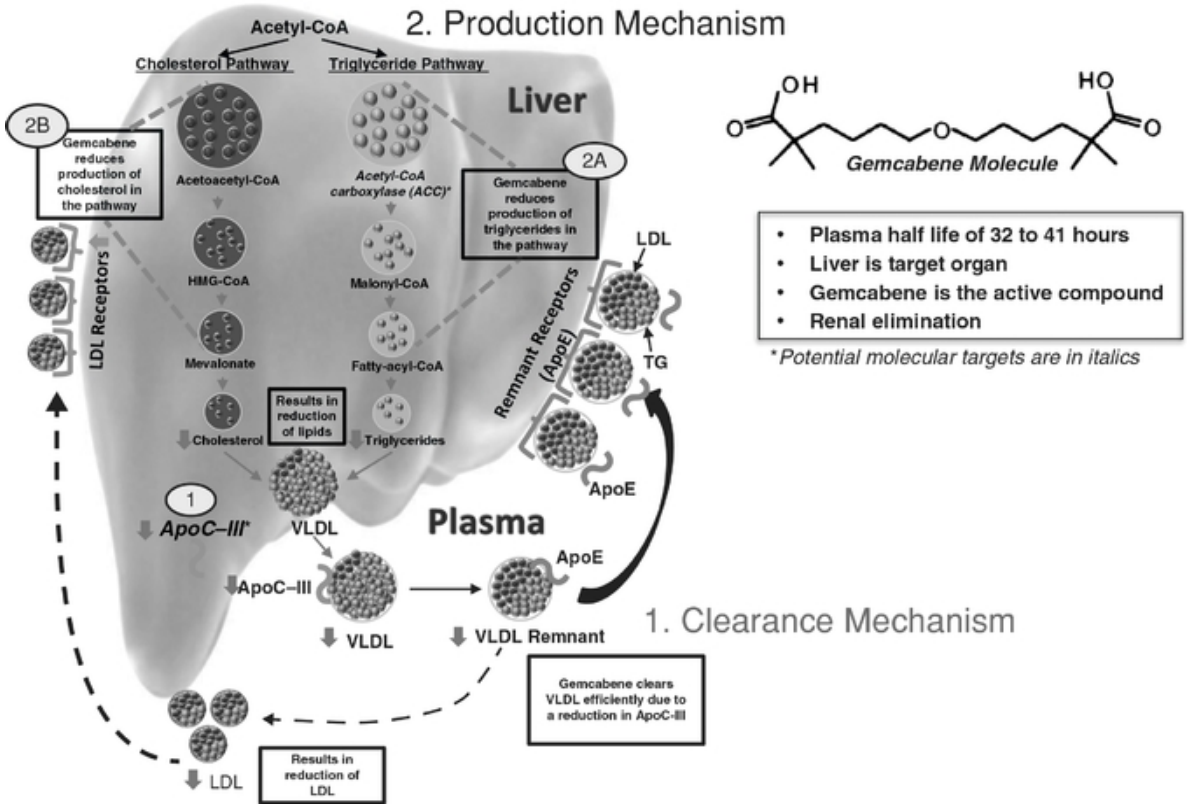


Gemcabene's (300mg/day) Reduction of Plasma ApoC-III and Plasma Triglycerides (Study 1027-004, 12 weeks)

(2) Gemcabene blocks the overall production of hepatic triglycerides and cholesterol. Given its structural similarities to long-chain fatty acid, gemcabene may act as an inhibitor of ACC targeting the rate-limiting enzyme in fatty acid synthesis, subsequently leading to a decreased hepatic triglyceride production. Gemcabene may also inhibit one or more enzymes in the cholesterol synthesis pathway leading to less cholesterol in the cell. This decrease in liver cholesterol activates processing of sterol regulatory element binding proteins (SREBPs), thereby increasing the number of LDL receptors displayed on the liver cell. The newly produced LDL receptors remove LDL from the blood. In preclinical studies in primary rat hepatocyte and mice models, gemcabene was observed to inhibit both triglyceride and cholesterol production.

The diagram below depicts the novel mechanisms of gemcabene. We will continue to undertake preclinical studies to further clarify gemcabene's involvement in various metabolic pathways.

Gemcabene Novel Mechanism of Action



In addition, we believe gemcabene may result in the reduction of inflammation, inflammatory markers and triglycerides (as a result of reduced apoC-III production) in the plasma of a patient in an inflammatory state. C-reactive Protein (CRP) is an inflammatory marker protein. CRP levels increase in response to inflammatory states and are associated with medical conditions such as atherosclerosis and other cardiovascular diseases, arthritis, hypertension, obesity, insulin resistance, and fatty liver disease. CRP expression is regulated by proteins in the nucleus of cells known as nuclear hormone receptors (NHRs). In inflammatory states, cytokines, such as interleukin-6 (IL-6) and interleukin (IL1-b), activate NHRs, such as C/EPB-b, C/EPB-d and nuclear factor kappa B (NF-kB), and lead them to bind to the CRP promoter and increase CRP mRNA production. Based on preclinical studies, gemcabene may inhibit the interaction of these NHRs on the CRP promoter and therefore reduce CRP mRNA production. Gemcabene has also been shown in preclinical studies to inhibit tissue necrosis factor-a (TNF-a) induced expression of the inflammatory cytokine IL-6 in human coronary artery endothelial cells and in a human hepatoma cell line. Overall, gemcabene may not only decrease the expression of CRP, but may also decrease the expression of the inflammatory cytokine IL-6 resulting in a reduction of inflammation. Gemcabene has been shown to reduce the level of CRP in human clinical trials, to decrease inflammation in a mouse model of arthritis, and to decrease pain in a rat model of thermal hyperalgesia.

The apoC-III promoter also contains a NF-kB binding site, and as such, the apoC-III gene may be upregulated under a chronic inflammatory state. Gemcabene's ability to reduce apoC-III mRNA levels may

result from gemcabene inhibiting NF-kB interaction with its binding site on the apoC-III promoter. We are further exploring this common transcription factor NF-kB as a binding site for gemcabene to reduce hsCRP and apoC-III. In contrast, Gemcabene has not been shown to directly or strongly bind to PPARs. See "Additional Studies and Trials."

Clinical Experience

Gemcabene has been assessed in 18 Phase 1 and Phase 2 clinical trials. One Phase 1 trial was not completed when the program was previously discontinued. Across all trials, 1,272 adult subjects, including healthy volunteers and patients with various underlying conditions, such as hypercholesterolemia, hypertriglyceridemia, osteoarthritis and hypertension, participated. Of the subjects, 895 have been exposed to at least one dose of gemcabene.

We believe that gemcabene's efficacy in Phase 1 and Phase 2 trials support our development plan focused on HoFH, HeFH, ASCVD and SHTG patients. Specifically, patients treated with gemcabene were observed to have significantly lowered LDL-C, hsCRP and triglycerides with results from the trials summarized below:

- In a four week, double-blind, multiple dose, Phase 1 trial in 50 healthy subjects (Trial 1027-003), gemcabene monotherapy doses (450 mg, 600 mg and 900 mg) significantly lowered LDL-C from baseline by approximately 30%.

- In an eight week, double-blind, placebo-controlled, Phase 2 trial in 66 patients with elevated LDL-C on background stable statin therapy (Trial 1027-018), both gemcabene doses (300 mg and 900 mg) in combination with statins significantly lowered LDL-C from baseline by approximately 25% to 30%.

- In an eight week, double-blind, placebo-controlled, Phase 2 trial in 277 patients with hypercholesterolemia (Trial A4141001), gemcabene monotherapy doses (300 mg, 600 mg and 900 mg) significantly lowered LDL-C, with the 600 mg and 900 mg doses lowering LDL-C by approximately 30%. Gemcabene monotherapy doses (600 mg and 900 mg) also significantly lowered hsCRP by approximately 40%.

- In a 12-week, double-blind, placebo-controlled, Phase 2 trial (Trial 1027-004), 94 of the 161 patients had elevated triglycerides (³200 mg/dL). For those patients, gemcabene lowered triglycerides in all dose arms, with the 300 mg dose lowering triglycerides by 40%. A post-hoc analysis of nine patients with severe triglyceride levels (³500 mg/dL) treated with 150 mg and 300 mg suggest gemcabene has the potential to lower triglycerides by as much as 60%.

Gemcabene was observed to be well tolerated at single doses up to 1,500 mg and multiple doses up to 900 mg/day. This includes 837 subjects who received multiple doses of up to 900 mg for up to 12 weeks. 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 (1,272 adult subjects), 10 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 did not appear to increase the reporting of myalgia when added to statin therapy and no treatment related events of myalgia were reported in any gemcabene monotherapy arm in the dyslipidemia trials. Small mean increases in serum creatinine and blood urea nitrogen (BUN) have been observed in some trials. The increase was reversible with all creatinine values returning to baseline within approximately two weeks of cessation of gemcabene. Elevated levels of liver enzymes, specifically alanine transaminase (ALT) and/or aspartate aminotransferase (AST), were observed in a few patients (0.23% of gemcabene patients compared to 0.26% of placebo patients had ALT or AST levels more than three times the upper limit of normal (ULN)) returning to baseline after cessation of treatment. No clinically meaningful changes were observed in physical examinations or vital signs, including blood pressure.

In addition, gemcabene demonstrated promising clinical pharmacology attributes across 10 completed 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 was observed to: (1) be rapidly absorbed following oral administration with time of maximum concentration within two hours and (2) reach maximum plasma concentration (Cmax) 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. In addition, no significant drug-drug interactions were observed with digoxin, a cardiovascular drug for the treatment of atrial fibrillation. There were no observed clinically relevant effects on QTc, a measure of cardiac rhythm, and no observed clinically relevant effect on blood pressure. Renal clearance was slightly decreased and was associated with a slight increase in serum creatinine. Treatment with gemcabene was associated with a mean increase in the percent change from baseline in the glucose disposal rate, but the comparison to placebo was not statistically significant. Based on PK AUC(0- ∞) data, the extent of absorption following administration of gemcabene with food was similar to that observed in fasting subjects. Gemcabene can be taken with or without food.

Based on the results of these trials, we believe gemcabene has the potential to have a differentiated profile as an oral once-daily, well tolerated adjunct therapy with promising evidence of efficacy in lowering of LDL-C, hsCRP and triglycerides in patients with dyslipidemia.

Gemcabene Phase 2 Clinical Trials

Gemcabene has been evaluated in seven Phase 2 trials across a diverse patient population. These trials explored safety, tolerability and efficacy and multiple doses of gemcabene as monotherapy and in combination with low-, moderate- and high-intensity statins. The table below summarizes our completed Phase 2 clinical trials.

Summary of Phase 2 Clinical Trials with Gemcabene in Patients

Trial Number	Patient / Indication	Trial Objectives	Doses	# Patients	Duration	Key Lipid and Other Endpoints
1027-004	Low HDL-C and normal or elevated TG (including SHTG)	Double-blind, placebo-controlled, randomized trial to determine the efficacy and safety of gemcabene in subjects with low HDL-C and either normal or elevated triglycerides	150, 300, 600, 900 mg	GEM=129 placebo=32	12 weeks	HDL-C, TG, LDL-C, hsCRP, apoB, Total cholesterol
1027-012	Hypertension	Double-blind, placebo-controlled, randomized trial to determine the effect of gemcabene compared to quinapril	900 mg (with quinapril 20 mg)	GEM=43 quinapril=18 placebo=41	12 weeks	Systolic BP, Diastolic BP
1027-014	Healthy Obese Non-diabetic	Double-blind, placebo-controlled, randomized trial to determine the effect of gemcabene on insulin sensitivity	900 mg	GEM=26 placebo=27	4 weeks	Insulin sensitivity
1027-015	Hypertension	Double-blind, placebo-controlled, randomized trial to determine the effect of gemcabene on blood pressure	900 mg	GEM=23	4 weeks	Systolic BP, Diastolic BP
1027-018	Hypercholesterolemia (not at goal on stable statin)	Double-blind, placebo-controlled, randomized trial to determine the efficacy and safety of gemcabene on stable statin therapy	300, 900 mg (with various low, moderate and high intensity statins)	GEM=42 placebo=24	8 weeks	LDL-C, hsCRP, apoB, TG, HDL-C, VLDL, Total cholesterol
A4141001	Hypercholesterolemia	Double-blind, placebo-controlled, randomized trial to determine the efficacy and safety of gemcabene as monotherapy or in combination with atorvastatin (after statin washout)	300, 600, 900 mg (with 10, 40, 80 mg atorvastatin)	GEM=208 atorvastatin=52 placebo=17	8 weeks	LDL-C, hsCRP, apoB, TG, HDL-C, Total cholesterol
A4141004	Osteoarthritis	Double blind, placebo controlled, randomized trial to determine the efficacy and safety of gemcabene in patients with osteoarthritis of the knee	150, 450, 900 mg (with rofecoxib 25 mg)	GEM=242 rofecoxib=79 placebo=83	4 weeks	Pain assessment, CGIC, PGIC, SODA

SODA=Sequential occupational dexterity assessment, PGIC=Patients global impression of change, CGIC=Clinical global impression of change, GEM=gemcabene; TG=triglycerides.

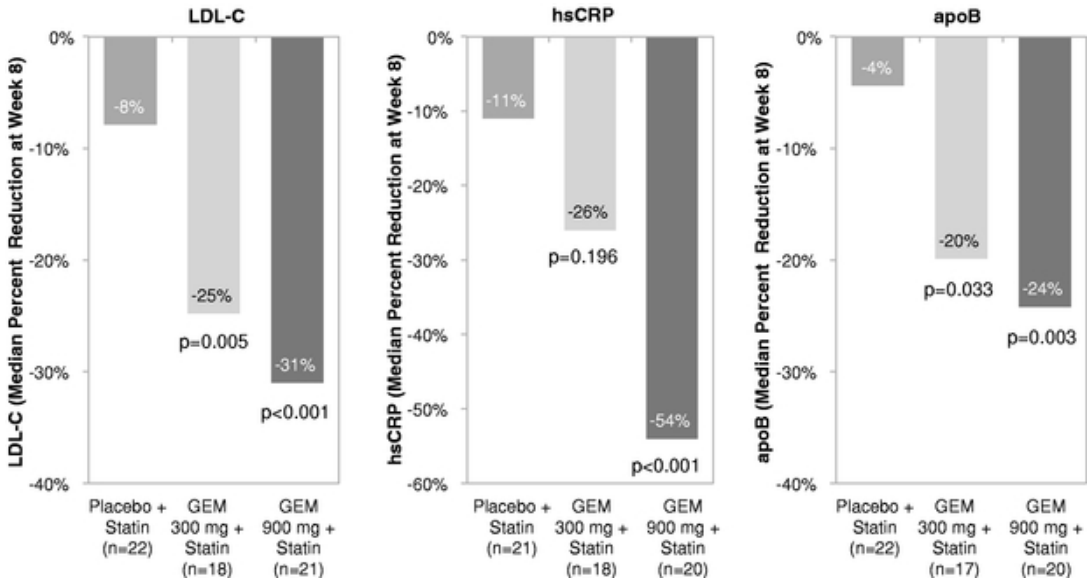
Gemcabene Phase 2 Trial in Patients with Hypercholesterolemia on Stable Statin Therapy (Trial 1027-018)

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. Patients in this trial were on low- (20% of patients), moderate- (60% of patients) and high-intensity (20% of patients) statin therapy. Gemcabene was administered at 300 mg and 900 mg once-daily for eight weeks. A majority of the patients were on moderate- to high-intensity statin therapy for at least three months. The primary endpoint was median percent change from baseline in LDL-C. Other endpoints included median perecent 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: As presented in the figure below, 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. Of clinical interest, patients treated with gemcabene were observed to have significantly lowered hsCRP, apoB and total cholesterol. At 900 mg, patients treated with gemcabene were observed to have significantly lowered hsCRP by 54% (p<0.001). At 300 mg and 900 mg, patients treated with gemcabene were observed to have significantly lowered apoB by 20% (p=0.033) and 24% (p=0.003), respectively. At 300 mg and 900 mg, patients treated with gemcabene were observed to have 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%. The pharmcodynamic response observed at 900 mg is similar to 600 mg of gemcabene. In addition, patients on moderate-intensity (n=12) and low-intensity (n=5) statins were observed to have a mean LDL-C lowering of 24% and 41%, respectively.

We believe these results support the continued development of gemcabene for the treatment HoFH, HeFH and ASCVD indications on maximally tolerated statins. Classification of statin dose intensity is defined in the 2013 ACC guidelines.

Median Percent Change from Baseline at Week 8 in Patients with Hypercholesterolemia on Background Stable Statin Therapy



LDL-C Median Percent Change from Baseline at Week 8 in Patients with Hypercholesterolemia on Background Stable Statin Therapy

	Placebo + Statin	GEM 300 mg + Statin	GEM 900 mg + Statin
n	22	18	21
Median Baseline LDL-C	153.3	143.5	142.5
Median Week 8 LDL-C	137	101.5	103
Median % Change	–7.9%	–24.8%	–31.0%
p-Value vs. Placebo	N/A	0.005	<0.001

*N/A = not applicable

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. Slightly more patients experienced an associated AE in the placebo treatment arm (29%) than those in the gemcabene treatment arms (300 mg: 20%; 900 mg: 23%). 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 an unverified 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 Hypercholestrolemia (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 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.

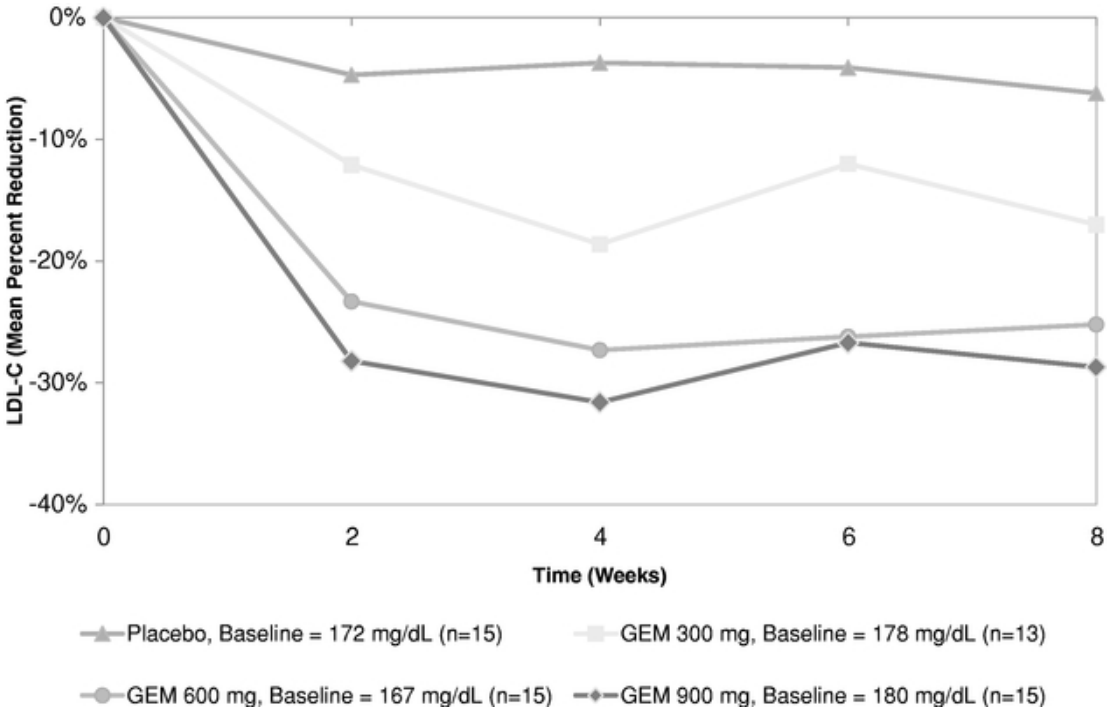
Efficacy: As presented in the figure below, patients treated with gemcabene were observed to have significantly lowered LDL-C by 17% (p=0.0013), 26% (p=0.0001) and 29% (p=0.0001) as monotherapy at 300 mg, 600 mg and 900 mg, respectively. The LDL-C lowering effect was seen within two weeks and was stable 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.

In a post-hoc analysis of patients with mixed dyslipidemia, we observed that gemacabene in combination with atorvastatin synergystically lowers triglyceride levels while further lowering LDL-C levels.

We believe these results support the continued development of gemcabene for the treatment HoFH, HeFH and ASCVD indications including mixed dyslipidemia.

LDL-C Mean Percent Change from Baseline in Patients with Hypercholesterolemia (with wash-out of statins)



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. 16 patients (placebo: 1, atorvastatin monotherapy: 2, gemcabene monotherapy: 6, gemcabene plus atorvastatin: 7) withdrew from the trial due to AEs, nine (atorvastatin monotherapy: 2, gemcabene monotherapy: 4, gemcabene plus atorvastatin: 3) of which were considered possibly related to treatment. AEs reported were generally mild to moderate in intensity. 14 patients (placebo: 1, atorvastatin monotherapy: 2, gemcabene monotherapy: 1, gemcabene plus atorvastatin: 10) reported an AE considered severe in intensity, one (gemcabene plus atorvastatin: 1) of which was considered possibly related to treatment. The most frequently occurring AEs across all treatment

arms were infection (8%), pain (6%) and headache (6%). 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. No other patient had a pre-specified clinically significant lab abnormality in ALT, AST, creatinine kinase or serum creatinine. No clinically meaningful changes in physical examinations or vital signs from baseline to the end of the trial were observed for any patient. The AEs experienced by more than 10% of patients in any treatment group are summarized below.

Adverse Events by Body System Occurring With ³10% of Patients in Any Treatment Group for Study A4141001

		Atorvastatin Mono			Gemcabene 300 mg + Atorvastatin				Gemcabene 600 mg + Atorvastatin				Gemcabene 900 mg + Atorvastatin			
AE Category	Pbo N=17	10 mg N=17	40 mg N=18	80 mg N=17	Mono N=16	10 mg N=17	40 mg N=18	80 mg N=18	Mono N=18	10 mg N=18	40 mg N=16	80 mg N=18	Mono N=17	10 mg N=18	40 mg N=16	80 mg N=18
All Adverse Events																
Body as a whole	5 (29)	4 (24)	5 (28)	4 (24)	**5 (31)**	3 (18)	5 (28)	4 (22)	**7 (39)**	7 (39)	4 (25)	4 (22)	**4 (24)**	5 (28)	8 (50)	10 (56)
Asthenia	0 (0)	0 (0)	1 (6)	2 (11)	**0 (0)**	0 (0)	0 (0)	0 (0)	**1 (6)**	2 (11)	0 (0)	1 (6)	**1 (6)**	0 (0)	1 (6)	0 (0)
Back Pain	0 (0)	0 (0)	1 (6)	0 (0)	**0 (0)**	0 (0)	1 (6)	1 (6)	**1 (6)**	2 (11)	0 (0)	2 (11)	**0 (0)**	0 (0)	1 (6)	0 (0)
Headache	0 (0)	1 (6)	3 (17)	1 (6)	**1 (6)**	0 (0)	1 (6)	0 (0)	**1 (6)**	2 (11)	1 (6)	1 (6)	**1 (6)**	2 (11)	0 (0)	1 (6)
Infection	3 (18)	1 (6)	1 (6)	0 (0)	**3 (19)**	1 (6)	1 (6)	1 (6)	**3 (17)**	2 (11)	0 (0)	0 (0)	**0 (0)**	2 (11)	1 (6)	3 (17)
Pain	0 (0)	2 (12)	1 (6)	0 (0)	**0 (0)**	1 (6)	3 (17)	1 (6)	**2 (11)**	1 (6)	1 (6)	0 (0)	**0 (0)**	1 (6)	1 (6)	2 (11)
Digestion	2 (12)	2 (12)	5 (28)	3 (18)	**3 (31)**	3 (18)	4 (22)	3 (17)	**4 (22)**	5 (28)	3 (19)	4 (22)	**4 (24)**	3 (17)	0 (0)	3 (17)
Constipation	1 (6)	1 (6)	3 (17)	0 (0)	**0 (0)**	2 (12)	1 (6)	1 (6)	**1 (6)**	1 (6)	1 (6)	1 (6)	**1 (6)**	1 (6)	0 (0)	0 (0)
Diarrhea	1 (6)	0 (0)	0 (0)	3 (18)	**2 (13)**	0 (0)	1 (6)	0 (0)	**1 (6)**	1 (6)	1 (6)	1 (6)	**0 (0)**	0 (0)	0 (0)	0 (0)
Dyspepsia	0 (0)	1 (6)	0 (0)	0 (0)	**1 (6)**	1 (6)	0 (0)	1 (6)	**0 (0)**	1 (6)	1 (6)	2 (11)	**1 (6)**	0 (0)	0 (0)	0 (0)
Flatulence	1 (6)	0 (0)	1 (6)	0 (0)	**2 (13)**	0 (0)	1 (6)	1 (6)	**1 (6)**	1 (6)	0 (0)	0 (0)	**0 (0)**	1 (6)	0 (0)	0 (0)
Nausea	0 (0)	0 (0)	1 (6)	1 (6)	**2 (13)**	0 (0)	2 (11)	2 (11)	**0 (0)**	1 (6)	1 (6)	0 (0)	**3 (18)**	1 (6)	0 (0)	2 (11)
Musculoskeletal	1 (6)	2 (12)	3 (17)	2 (12)	**0 (0)**	0 (0)	2 (11)	2 (11)	**0 (0)**	3 (17)	3 (19)	0 (0)	**0 (0)**	3 (17)	0 (0)	0 (0)
Arthralgia	0 (0)	2 (12)	2 (11)	0 (0)	**0 (0)**	0 (0)	1 (6)	0 (0)	**0 (0)**	1 (6)	2 (13)	0 (0)	**0 (0)**	2 (11)	0 (0)	0 (0)
Myalgia	0 (0)	1 (6)	1 (6)	1 (6)	**0 (0)**	0 (0)	0 (0)	1 (6)	**0 (0)**	2 (11)	1 (6)	0 (0)	**0 (0)**	1 (6)	0 (0)	0 (0)

AE = adverse event; Mono = monotherapy; Pbo = placebo.

Source: Report A4141001, Table 40 (Cowmeadow et al., 2003)

Gemcabene Phase 2 Trial in Patients with Elevated Triglycerides (Trial 1027-004)

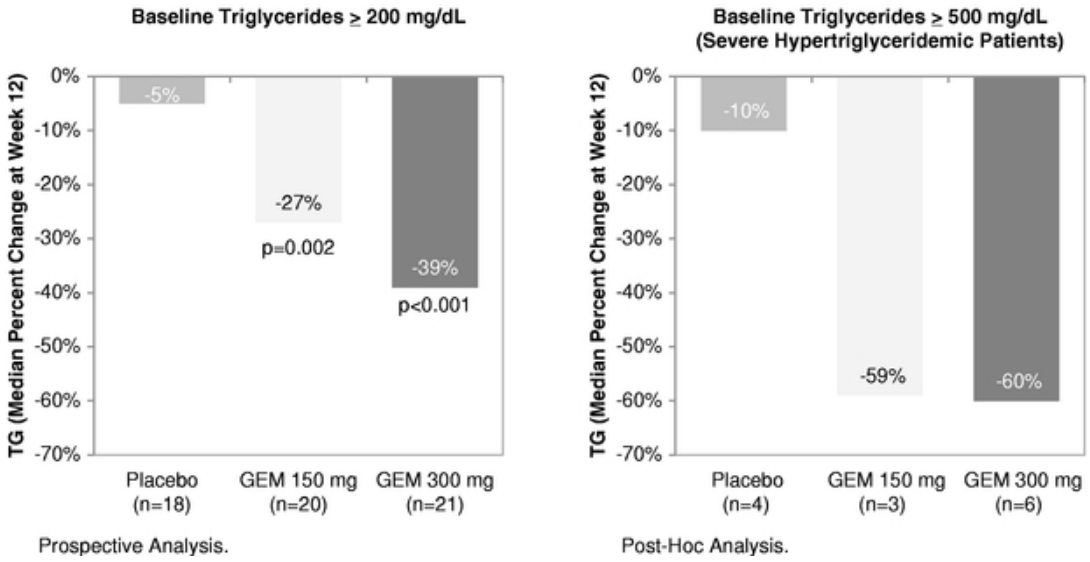
This Phase 2 double-blind, placebo-controlled, randomized trial was designed to assess the efficacy and safety of gemcabene in patients with low HDL-C and either normal or elevated triglycerides. Gemcabene was administered at 150, 300, 600 and 900 mg once-daily for 12 weeks. The objectives of this trial 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%.

We believe these results support the continued development of gemcabene for the treatment SHTG and ASCVD patients with mixed dyslipidemia.

Triglyceride Median Percent Change From Baseline at Week 12 in Patients with High to Severe Hypertryglyceridemia



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. Fewer patients experienced an associated AE in the placebo arm (9%) compared to gemcabene treatment arms (17%). Three patients (placebo: 1, gemcabene: 2) experienced SAEs, none of which were considered related to treatment. Six patients (placebo: 2, gemcabene: 4) withdrew from the trial due to AEs, four (placebo: 1, gemcabene: 3) of which were considered possibly related to treatment. AEs reported were generally mild to moderate in intensity. Two patients (placebo: 1, gemcabene: 1) reported an AE considered severe in intensity. The most frequent AEs in the placebo arm were infection (16%), accidental injury (6%), back pain (6%), dyspepsia (6%), headache (6%) and sinusitis (6%). The most frequently observed AEs in the gemcabene arms were infection (12%), headache (7%) and asthenia (5%). Two patients had ALT values that met the definition of a clinically important laboratory abnormality (placebo: 1, 600 mg gemcabene: 1). 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 1 Clinical Trials

Gemcabene has been evaluated in ten completed Phase 1 trials in healthy volunteers. These trials explored safety, tolerability, pharmacokinetics, pharmacodynamics and dose response as monotherapy and in combination with high-intensity statin doses and other drugs. The table below summarizes our completed Phase 1 trials.

Summary of Phase 1 Clinical Trials of Gemcabene in Healthy Volunteers

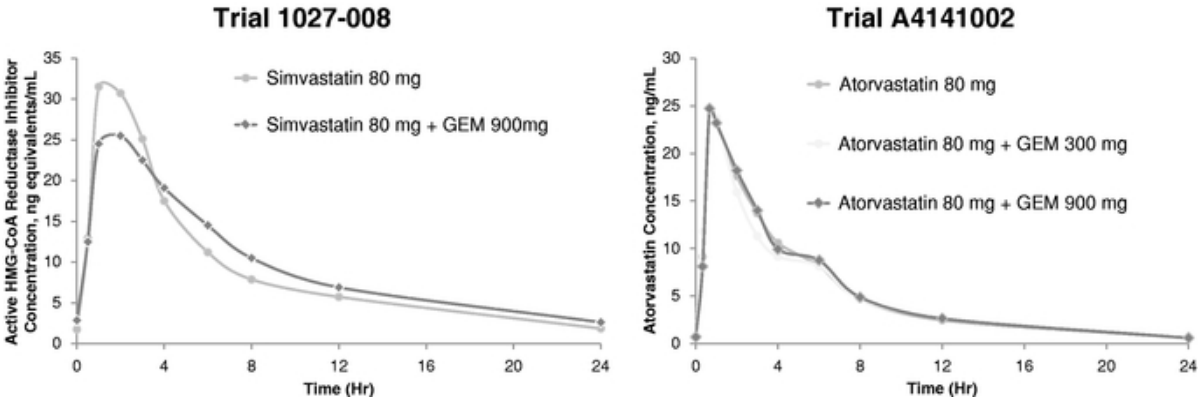
Trial Number	Trial Objectives	Doses	# Volunteers	Duration
1027-001	Single-dose trial to evaluate safety, tolerability and pharmacokinetics (PK) of gemcabene	25, 100, 300, 600, 1,050, 1,500 mg	GEM = 12	Single Dose
1027-002	Single-dose trial to evaluate the effect of food on the PK of gemcabene	450 mg	GEM = 12	Single Dose
1027-003	Double blind, placebo controlled, randomized trial to evaluate the PK and pharmacodynamics (PD) at multiple doses of gemcabene	50, 150, 450, 750/600, 900 mg	GEM = 40 placebo = 10	4 Weeks
1027-008	Trial to determine the potential drug-drug interactions of simvastatin with gemcabene	900 mg (with 80 mg simvastatin)	GEM = 20	15 Days
1027-009	Trial to evaluate the bioequivalence between a capsule and tablet formulation of gemcabene	300 mg	GEM = 16	Single Dose
1027-010	Trial to evaluate the mass balance and metabolism of gemcabene	600 mg	GEM = 6	Single Dose
1027-011	Trial to determine the potential drug-drug interactions of digoxin with gemcabene	900 mg (with 0.25 mg digoxin)	GEM = 12	10 Days
A4141002	Trial to determine the potential drug-drug interactions of atorvastatin with gemcabene	300, 900 mg (with 80 mg atorvastatin)	GEM = 20	22 Days
A4141003	Trial to evaluate the effect of gemcabene on QT interval	900 mg	GEM = 20	8 Days
A4141005	Trial to evaluate the effect of gemcabene on the glomerular filtration rate	900 mg (with 3,235 mg lohexol)	GEM = 12	10 Days

Note: One trial (A4141006; 23 volunteers) was stopped prior to completion as a result of discontinuation of the program. The trial was designed to evaluate multiple fixed-dose combinations of gemcabene with atorvastatin.

Gemcabene Phase 1 Drug-Drug Interaction Trials to Assess PK on Statins (Trials 1027-008 and A4141002)

Two open-label, multiple-dose, Phase 1 trials were conducted to assess PK of gemcabene in combination with high-intensity statins. In Trial 1027-008, 900 mg of gemcabene was co-administered with 80 mg simvastatin in 20 healthy volunteers. In Trial A4141002, 300 mg and 900 mg of gemcabene were co-administered with 80 mg atorvastatin in 20 healthy volunteers. In both trials, treatment with gemcabene in combination with statins was observed to be well tolerated by volunteers. Furthermore, as presented in the figures below, the PK profiles with and without 900 mg gemcabene were observed to be similar, suggesting no clinically relevant drug-drug interactions with either 80 mg simvastatin or 80 mg atorvastatin. Trial 1027-008 also demonstrated LDL-C lowering of 18% at a very low baseline of 59 mg/dL on highest dose of 80 mg simvastatin.

PK Profiles of High-Intensity Statins Co-administered with Gemcabene

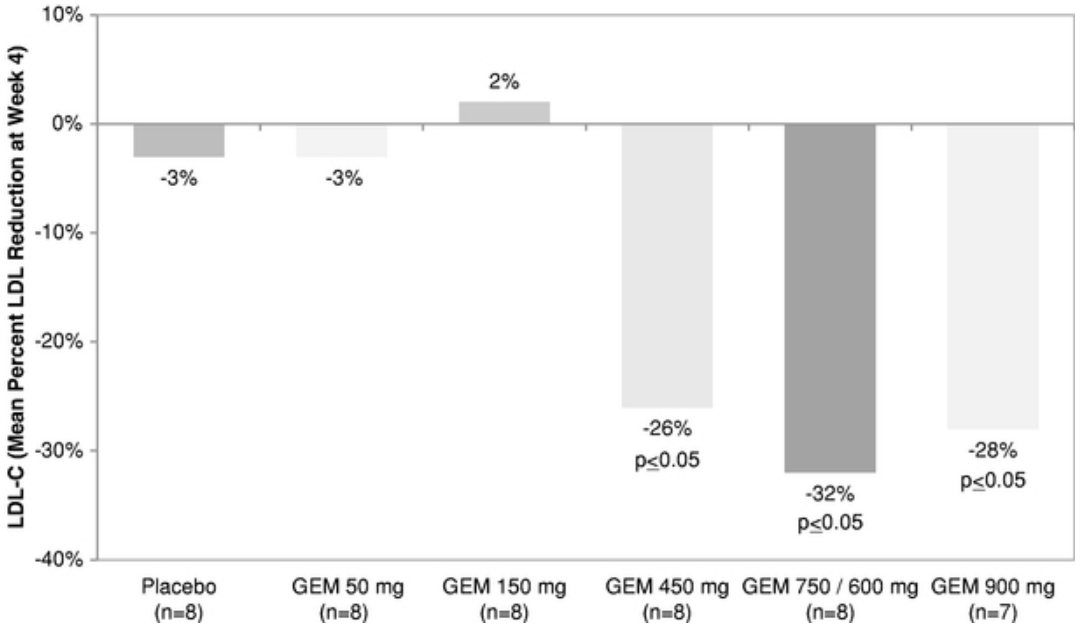


Gemcabene Phase 1 Dose Escalation Trial to Assess PK and PD (Trial 1027-003)

This Phase 1 randomized, double-blind, rising, multiple-dose trial was designed to assess PK characteristics and PD effect of gemcabene. Gemcabene was administered at doses ranging from 150 mg to 900 mg once-daily to 50 healthy volunteers over four weeks. Primary values measured were AUC(0-24) and Cmax. PD endpoints measured were total cholesterol, LDL-C, HDL-C, triglyercides, apoB and apoA1. Baseline LDL-C levels for the evaluable patients were similar across the treatment arms at approximately 120 mg/dL.

Efficacy: As presented in the figure below, volunteers treated with gemcabene were observed to demonstrate a dose response and significantly (p£0.05) lowered LDL-C by approximately 30% at 450 mg to 900 mg. Treated volunteers were observed to significantly (p£0.05) lower total cholesterol by 18% to 20% and apoB by 8% to 21% at 450 mg to 900 mg doses of gemcabene.

LDL-C Mean Percent Change from Baseline at Week 4 in Healthy Volunteers



Safety: Gemcabene was observed to be well tolerated. In general, frequency of AEs did not increase with dose. Healthy volunteers taking any dose of gemcabene (50 mg, 150 mg, 300 mg, 600/750 mg or 900 mg) were observed to have a safety profile similar to that of placebo. Slightly more patients experienced an associated AE in the placebo arm (60%) compared to those in the gemcabene treatment arms (40%). No patients experienced an SAE. One patient (placebo: 1) withdrew from the trial due to an AE. AEs reported were generally mild to moderate in intensity. Two patients (placebo: 1, gemcabene: 1) reported an AE considered severe. The most frequent AEs in the placebo arm were headache (60%), photosensitivity (20%), diarrhea (20%), skin and appendages (20%) and contact dermatitis (20%). The most frequent AEs in the gemcabene arms were headache (43%), infections (15%), asthenia (13%), photosensitivity (13%), nausea (15%) and rhinitis (13%). Mild elevations in BUN were observed, but overall, laboratory abnormalities were sporadic, transient, and appeared unrelated to gemcabene administration. No clinically meaningful changes in physical examinations or vital signs from baseline to the end of the trial were observed. No clinically significant ECG abnormalities were observed.

Gemcabene Preclinical Studies

As part of a comprehensive nonclinical toxicology program, over 30 exploratory and definitive single and repeated-dose toxicity studies with gemcabene were conducted in mice, rats, dogs and monkeys. There are very few outstanding nonclinical studies needed for registration such as two-year carcinogenicity studies in rodents and juvenile toxicology. Gemcabene was well tolerated in these completed studies, including a 26-week repeat dose study in rats and monkeys and 52-week repeat dose study in monkeys. The completed studies support conducting clinical trials up to six months.

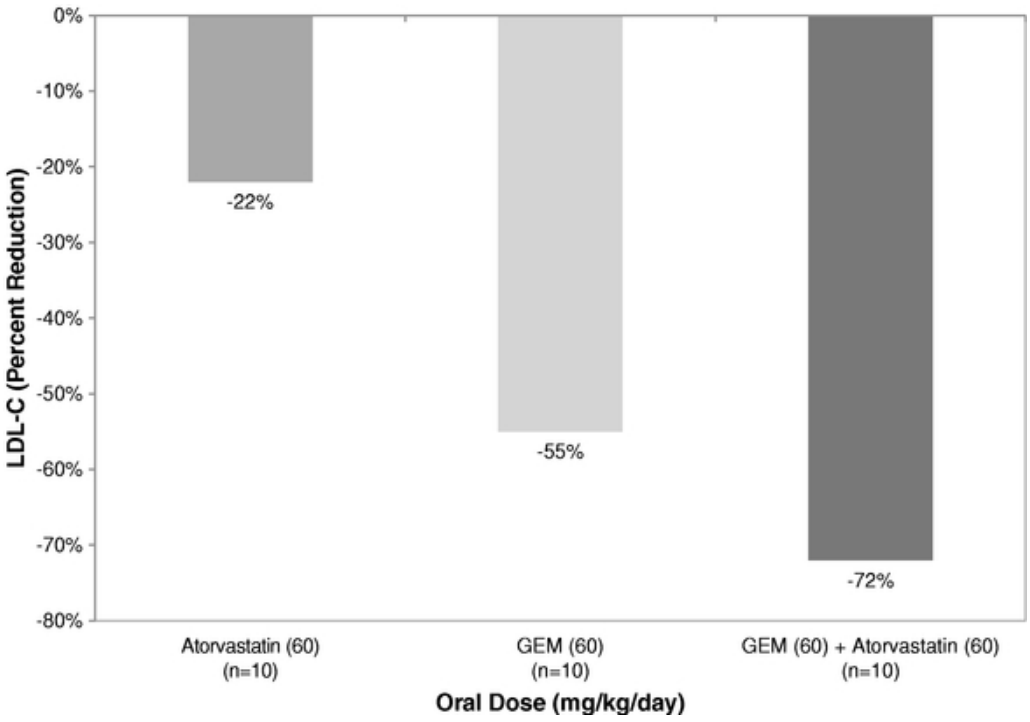
In multiple preclinical efficacy studies, gemcabene was observed to have lowering effects on plasma LDL-C, triglycerides and anti-inflammatory markers in diet-induced and genetic preclinical models of dyslipidemia.

In Vivo Proof of Principle Study for HoFH

In LDL-receptor deficient mice, gemcabene at 60 mg/kg/day was observed to reduce LDL-C up to 55% as monotherapy and 72% in combination with statins. This dose in mice is equivalent to approximately a

450 mg gemcabene tablet per day in humans. This LDL-receptor deficient animal model has been reported in literature to be fairly predictive of HoFH therapies in practice. For example, statin lowering of approximately 20% in LDL-receptor deficient-mice model correlates well to the approximately 15% to 20% LDL-C lowering observed in HoFH patients, and Juxtapid lowering of approximately 50% to 80% in LDL-receptor deficient-rabbits model correlates well to the approximately 40% to 50% in HoFH patients.

Gemcabene Preclinical HoFH Mice Model



Gemcabene Clinical Development Plan

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. Our investigational new drug application (IND) was submitted to the FDA in December 2015 and is in effect. Canada and Denmark have also accepted our clinical trial application.

We plan to initiate three late stage clinical trials by the end of 2016. Upon completion of one or more of these clinical trials, we intend to request one or more EOP2 meetings with the FDA and other foreign regulatory authorities to discuss the design and scope of the Phase 3 registration trials and long-term safety exposure needed for registration. We would expect to launch multiple Phase 3 registration trials no later than 2018 for our targeted indications. The development programs for our targeted indications are described below. The in-vitro drug transport studies have been completed in accordance with FDA guidelines, and we expect to conduct a few additional clinical pharmacology Phase 1 trials to support registration.

HoFH: COBALT-1 Trial (GEM-201)

The clinical development program for patients 17 and older with HoFH with elevated LDL-C is expected to include one Phase 2b dose finding trial (GEM-201) followed by a Phase 3 registration trial. The GEM-201 protocol has been reviewed by the FDA and may proceed. We expect to initiate the Phase 2b open-label, dose-escalation, dose-finding trial in patients with HoFH on stable statin therapy (including other approved lipid-lowering therapies such as Zetia and Repatha) in the first half of 2016 in the United States and Canada. This trial is designed to evaluate the LDL-C lowering effect of gemcabene in a HoFH population at three doses. The trial is expected to enroll 8 patients with a clinical diagnosis of HoFH. Patients will be sequentially administered 300 mg, 600 mg and 900 mg doses escalated every 4 weeks for a total of 12 weeks. The primary endpoint will be LDL-C lowering from baseline at 4, 8, and 12 weeks, the acceptable surrogate endpoint for approval. Other endpoints will include hsCRP, apoB, non HDL-C, triglycerides, VLDL and total cholesterol. Safety of these patients will be assessed by AE monitoring, clinical laboratory assessments, ECGs, physical examinations and vital sign assessments. We expect to report data for this open-label Phase 2b trial beginning in the end of 2016 and through the first half of 2017. The Phase 2b trial, along with dose response data from other trials, is expected to provide the necessary data for us to determine the clinical dose for the Phase 3 registration trial. The Phase 3 registration trial (GEM-202, COBALT-2) is estimated to enroll 30 to 60 patients, and will be conducted globally with the potential for patients to continue in an open-label safety extension. It is anticipated that a single Phase 3 registration trial is expected to be sufficient to support registration.

Hypercholesterolemia: ROYAL-1 Trial (GEM-301)

The clinical development program for adult patients with hypercholesterolemia (including but not limited to HeFH and ASCVD) with elevated LDL-C levels while on maximally tolerated high-intensity statin therapy is expected to include one Phase 2b dose finding trial (GEM-301) followed by Phase 3 registration trials. The GEM-301 protocol has been reviewed by the FDA and may proceed. We expect to initiate the Phase 2b double-blind, randomized, parallel-group, placebo-controlled, dose finding trial in patients with hypercholesterolemia on high-intensity therapy (with or without ezetimibe) in the second half of 2016 in the United States and several other countries. We may consider further amendments to this trial design. This trial will be designed to evaluate the LDL-C lowering effect of gemcabene at three doses in combination with statins and/or ezetimibe with entry LDL-C >100 mg/dL. The trial is expected to enroll 212 patients with hypercholesterolemia on maximally tolerated high-intensity statins. Patients will be treated with 300 mg, 600 mg or 900 mg gemcabene once-daily for 12 weeks. The primary endpoint will be LDL-C lowering from baseline at 12 weeks. Other endpoints will include hsCRP, apoB, non HDL-C, triglycerides, VLDL and total cholesterol. Safety of these patients will be assessed by AE monitoring, clinical laboratory assessments, ECGs, physical examinations and vital sign assessments. We expect to report data for this Phase 2b trial in the second half of 2017. Currently available data suggests 600 mg gemcabene would be the dose selected for the Phase 3 registration trial. After our Phase 2b trial and after discussions with the FDA in our EOP2 meeting and other regulatory agencies, we believe we will be able to better define the Phase 3 registration trials and long-term safety exposure needed for registration.

SHTG: INDIGO-1 Trial (GEM-401)

The clinical development program for adult patients with SHTG with elevated triglyceride levels is expected to include one Phase 2b trial (GEM-401) designed to meet anticipated registration standards, followed by a Phase 3 registration trial. The Phase 2b protocol is still being finalized and the draft design under consideration is a double-blind, randomized, placebo-controlled trial in patients with SHTG to be initiated in the second half of 2016 in the United States and Canada. The trial will be designed to evaluate the triglyceride lowering effect. The trial is expected to enroll 80 to 120 patients (40 to 60 patients per arm) with triglycerides ³500 mg/dL. Patients will be treated with 300 mg of gemcabene or placebo with or without background statin therapy once-daily for 12 weeks. The primary endpoint will be TG lowering from baseline after 12 weeks with the potential for patients to continue in an open-label safety extension. Other endpoints will include LDL-C, hsCRP, apoB, non HDL-C, VLDL and total cholesterol. A sub-analysis may be

conducted to determine the number of patients at the end of the study achieving triglyceride levels below 500 mg/dL. Safety of these patients will be assessed by AE monitoring, clinical laboratory assessments, ECGs, physical examinations and vital sign assessments. We expect to report top-line data for this Phase 2b trial in the second half of 2017. After our Phase 2b trial and after discussions with the FDA in our EOP2 meeting and other regulatory agencies, we believe we will be able to better define the Phase 3 registration trials and long-term safety exposure needed for registration.

Additional Studies and Trials

Studies in Response to Partial Clinical Hold for Compounds in PPAR Class

Peroxisome proliferation-activated receptor (PPAR) agonists are drugs which bind and turn on the many PPARs in the nucleus. PPARs comprises 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 the messenger RNA) of genes that regulate the storage and mobilization of lipids (fats), glucose metabolism, and inflammatory responses. PPAR-a 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 thiazolidinediones drugs.

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 studies. 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. Our current IND is subject to the same partial clinical hold. The partial clinical hold permits clinical trials of up to six months for gemcabene and also requires us to conduct two-year rat and mouse carcinogenicity studies before conducting clinical trials of longer than six months. Our two-year rat and mouse carcinogenicity studies are underway and scheduled for completion by the end of 2017 and draft reports will be issued shortly thereafter.

We believe the apparent weak PPARa effects observed in rodents (for example, peroxisome proliferation and elevation of liver weight) are likely rodent-specific phenomena, and, based on scientific publications reviewing nonclinical and clinical experience, share little apparent relevance for human risk assessment. In a recently completed PPAR agonist receptor binding assays we observed essentially no gemcabene 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 the marketed PPARa agents, such as fibrates, including gemfibrozil. We believe the PPARa responses in the rat are secondary and perhaps related to the mobilization or formation of a naturally occurring molecule that binds to PPARa in response to gemcabene administration.

Cardiovascular Outcomes Trials

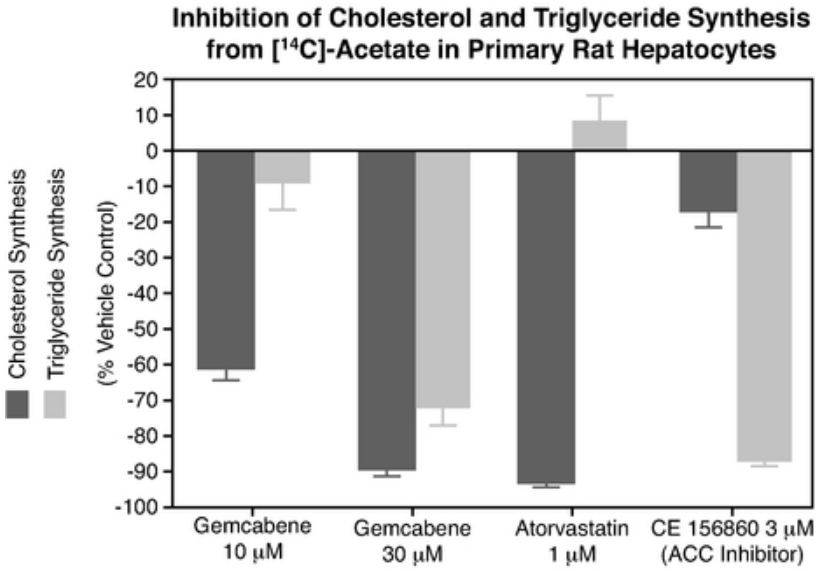
We believe it is well accepted that every 1.6 mg/dL lowering of LDL-C through the cholesterol synthesis pathway results in a 1% lowering of cardiovascular disease risk. The FDA has not required any approved therapy targeting LDL-C lowering, including non-statin therapies, to initiate or complete a cardiovascular outcomes trial in connection with its approval of HoFH, HeFH and ASCVD therapies. Based on recent drug approvals, we believe it is unlikely that the FDA will require us to initiate or complete a cardiovascular outcomes trial for any of the targeted indications, although we would plan to initiate a cardiovascular outcomes trial, 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. Notwithstanding our current expectations, the FDA could require us to initiate or complete a cardiovascular outcomes trial as a condition to filing or approving an NDA for gemcabene.

Additional Indications and Patient Populations:

Nonalcoholic steatohepatitis (NASH) is a severe disease of the liver caused by inflammation and a buildup of fat in the organ. NASH is part of a group of conditions called nonalcoholic fatty liver disease (NAFLD) that affects one out of four people in the United States. In the United States NASH affects up to approximately 2-5% of the population, or between six to eight million people. The presentation of NASH resembles alcoholic liver disease but occurs in people who drink little or no alcohol. The major feature of NASH is excess fat content in the liver, along with inflammation and liver damage. It can lead to liver cirrhosis, fibrosis, hepatocellular carcinoma, liver failure, liver-related death and liver transplantation. NASH can also lead to an increased risk of cardiovascular disease. Prevalence has increased due to the growing number of obese and diabetic patients. It is more common in women than in men and currently there are no specific therapies for treating NASH.

Gemcabene may be effective in treating patients for NASH given its mechanism of action around inflammation and triglycerides. In the plasma, gemcabene significantly reduces both hsCRP (–36% to –40%) in combination with a statin and triglycerides (–39% to –60%) as monotherapy. This suggests gemcabene may reduce the inflammation state and amount of fat in the blood in patients that suffer from NASH. In the liver, gemcabene also affects both the triglycerides and cholesterol synthesis pathway; specifically in the triglyceride pathway it inhibits the conversion of ACC into triglycerides (see figure below). We are exploring further proof of concept for NASH in both preclinical models and different patient populations such as Familial Partial Lipodystrophy (FPL) patients. The FPL condition leads to loss of metabolic control resulting in an extreme metabolic like state, in which the FPL patient can present with diabetes, cardiovascular disease, hypertriglyceridemia and NASH. In addition, we have filed new provisional applications for the treatment of NASH.

Gemcabene Inhibits *de novo* Synthesis of Both
Cholesterol and Triglycerides



Source: Research Report 76100065 (2013)

Future In-licensing and Acquisition Opportunities

Our scientific team is well-qualified to identify, in-license or acquire, and develop additional product candidates to diversify our pipeline and generate long-term growth. We continually evaluate and prioritize interesting product candidates based on scientific merit, regulatory pathways, and commercial

differentiation. Our focus is on product candidates that allow us to manage across the continuum of care from acute to chronic dyslipidemia patients. We have a particular interest in acute therapies in the cardio-metabolic space since we believe a next frontier will be to reverse the cholesterol-related effects of atherosclerosis, which leverages the team's expertise.

Sales and Marketing

Given our current stage of development, we have not yet established a commercial organization or distribution capabilities, nor have we entered into any partnership or co-promotion arrangements with an established pharmaceutical company. To develop the appropriate commercial infrastructure to launch gemcabene in the United States, if approved, for the narrower indications of HoFH, we may build out a specialty sales force to reach a concentrated number of approximately 50 lipid centers and 500 lipidologists across the country. This would require additional financial and managerial resources. We may engage in partnering discussions with third parties from time to time. When we seek approval and launch commercial sales of gemcabene outside of the United States or for broader patient populations in the United States, including patients with HeFH, ASCVD and SHTG, we may establish alliances with one or more pharmaceutical company collaborators, depending on, among other things, the applicable indications, the related costs and our available resources.

Manufacturing

We do not own or operate, and currently have no plans to establish, any manufacturing facilities. We rely on contract manufacturers to produce both the drug substance and drug product amounts required for our clinical trials and preclinical toxicology work. Drug supply in an amount anticipated to be sufficient for our planned late stage clinical trials was manufactured in 2015. All lots of drug substance and drug product used in clinical trials are manufactured under current good manufacturing practices (cGMP), a quality system regulating manufacturing.

Gemcabene is a small molecule drug that can be synthesized as a crystalline monocalcium single polymorph with readily available raw materials and using conventional chemical processes.

Previous development has demonstrated the drug substance manufacture can be scaled up to 200 kg and drug product tablets can be manufactured at varying dosages. Previous stability data suggest an anticipated expiry of at least 18 months.

Gemcabene drug substance analytical development and production has been completed and scaled-up to meet clinical II/III cGMP requirements with sufficient chemistry, manufacturing, and control to support Phase 2b and Phase 3 trials. We have also selected a drug product manufacturer that has completed the analytical and process development to support the manufacture of tablets of various strengths. We are also planning additional stability studies for both the drug substance and drug product lots manufactured in order to extend expiry and to support regulatory approval and commercial stage.

Our contract manufacturers are currently producing, and will produce in the future, our bulk drug substance and drug product for use in our preclinical studies and clinical trials utilizing reliable and reproducible synthetic processes and common manufacturing techniques. We obtain such supplies from manufacturers on a purchase order basis, and do not have any long-term arrangements. We intend to identify and qualify our current manufacturers as well as alternative manufacturers to provide bulk drug substance and drug product prior to the NDA submission to the FDA to ensure the regulatory support necessary for multiple manufacturing sites in order to supply sufficient commercial quantities at the drug launch and forward. We plan to continue to rely upon contract manufacturers and, potentially, collaboration partners to manufacture commercial quantities of our drug substances and drug product candidates, if approved for marketing by the applicable regulatory authorities.

Pfizer License Agreement

In April 2011, we entered into a license agreement with Pfizer (the Pfizer Agreement) for a worldwide exclusive license to certain patent rights to make, use, sell, offer for sale and import the clinical product candidate gemcabene. In exchange for this license, we agreed to issue shares of our common stock to Pfizer representing 15% of our fully diluted capital at the close of the first arms-length series A financing, which occurred on March 31, 2015.

We agreed to make milestone payments totaling up to $37 million upon the achievement of certain milestones, including the first regulatory submission 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 or any product containing 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.

We have 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 expiration of the last valid claim of the licensed patent rights, including any patent term extensions or supplemental protection certificates. The royalty rates range from the high single digits to the low teens depending on the level of net sales. Under the Pfizer Agreement we are obligated to use commercially reasonable efforts to develop and commercialize gemcabene.

The Pfizer Agreement will expire upon expiration of the last royalty term. Either party may terminate the Pfizer Agreement for the other party's uncured material breach and specified bankruptcy events. Pfizer may terminate the Pfizer Agreement if we or any of our sublicensees challenge the validity, enforceability or ownership of the licensed patents. Additionally, Pfizer may revoke the license if we are unable to adequately commercialize gemcabene by April 2021.

Intellectual Property

Our patent estate includes patents and/or patent applications to forms of gemcabene, methods of using gemcabene, and methods of manufacturing gemcabene. Charles Bisgaier, a co-founder of Gemphire, is an inventor on six of the eight patent families. The active pharmaceutical ingredient and clinical formulations of the drug are protected by patents. Subsequent to obtaining the license from Pfizer, additional patents have been filed that are entirely owned by Gemphire.

As of May 2, 2016, Gemphire's patent estate, including patents we own or license from third parties, on a worldwide basis, included four issued U.S. patents, eight pending U.S. patent applications, 23 issued patents in foreign jurisdictions including Canada, France, Germany, Great Britain, Ireland, Italy, Mexico and Spain and 15 pending patent applications in foreign jurisdictions including Australia, Canada, China, Europe, Hong Kong, Japan and Mexico. Of our worldwide patents and pending applications, all relate to our product candidate gemcabene.

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 our 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, we will likely 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 may be extended to 2023, or possibly 2024. Assuming market approval of gemcabene in 2019, data exclusivity would provide exclusivity for gemcabene out to about 2024. Furthermore, and importantly in our case, the FDA orphan designation for HoFH may provide us seven years of market exclusivity for gemcabene in the United States for HoFH. This market exclusivity would provide protection for gemcabene for treating HoFH out to about 2026. Related foreign patents, which have issued in jurisdictions including Canada, Denmark, Finland, France, Germany, Great Britain, Ireland, Italy, the

Netherlands, Sweden, Spain, Japan, Mexico and New Zealand, 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 with statins and methods of using a combination of gemcabene and a statin for treating several conditions including hyperlipidemia. This patent is expected to expire in 2020, absent any extensions. Related foreign patents, which have issued in jurisdictions including France, Germany, Great Britain, Ireland, Italy, Spain, Mexico, and Singapore are expected to expire in 2018, absent any adjustments or extensions.

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 TG^{3}500 mg/dL with gemcabene treatment. This patent is expected to expire in 2032, absent any adjustments or extensions. Foreign counterpart patent applications are pending in Australia, Canada, China, Europe, Hong Kong, Mexico and Japan, and any patents issuing from such applications are expected to expire in 2031, absent any adjustments or extensions.

U.S. patent application number 14/370,722, which we own, 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 Australia, Canada, China, Europe, Japan and Mexico. Any patent that may issue in this family, absent any patent term adjustment or extension, is expected to expire in 2033.

In 2015, we filed two new provisional patent applications, one for methods of treatment of mixed dyslipidemia using gemcabene in combination with statins and treatment of NASH using gemcabene as monotherapy (U.S. Provisional Patent Application Number 62/252,195), and the other relating to fixed dose combinations and modified release formulations of gemcabene and statins (U.S. Provisional Patent Application Number 62/252,147), as well as two non-provisional patent applications on methods of large scale manufacturing for making dicarboxyalkyl ethers (US Application Number 14/942,765, and corresponding PCT application Number PCT/US2015/060917). The two provisional applications, if issued, are expected to expire in 2036. The two non-provisional applications if issued, are expected to expire in 2035. As of May 2, 2016, we filed four new provisional patent applications: U.S. Provisional Patent Application Numbers 62/295,292, 62/300,393, 63/30,0415 and 62/314,597.

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

Our industry is highly competitive and subject to rapid and significant innovation and change. The market for lipid regulating therapies is especially large and competitive. Our potential competitors include large pharmaceutical and biopharmaceutical companies, specialty pharmaceutical and generic drug companies, academic institutions, government agencies and research institutions. Gemcabene, if approved, will face intense competition. Key competitive factors affecting its commercial success will include efficacy, safety, tolerability, reliability, convenience of dosing, price and reimbursement.

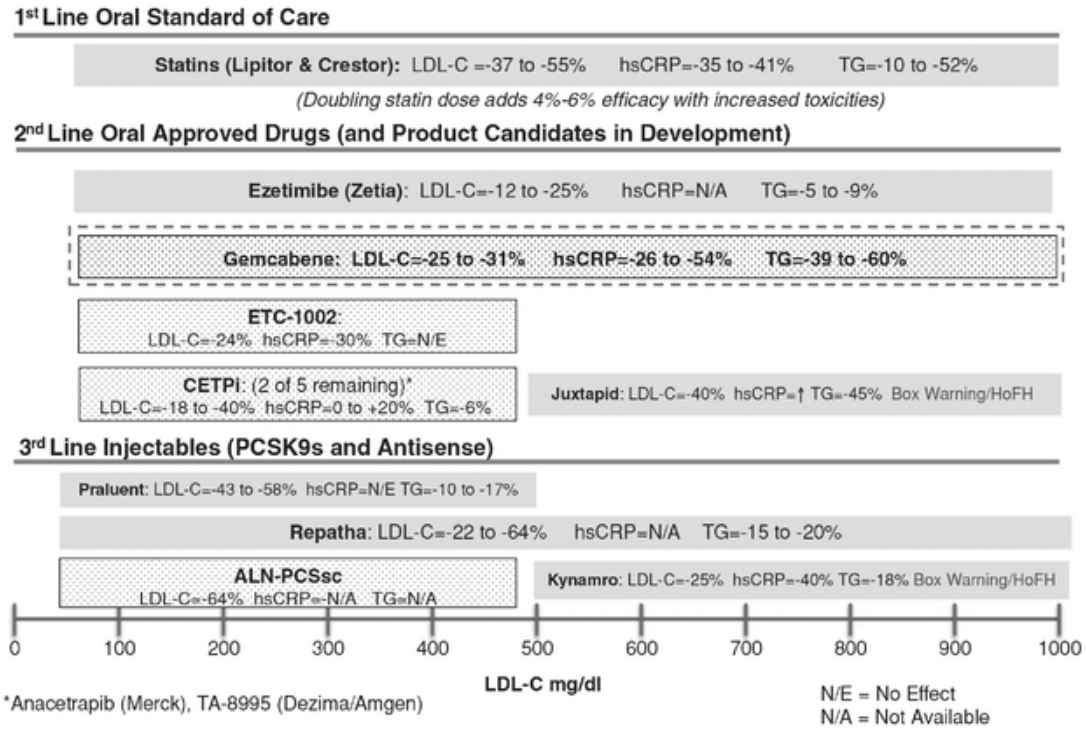
Statins are the most commonly used therapy to lower LDL-C in the dyslipidemia market. They are used by patients with HoFH as well as HeFH and ASCVD. Branded statins include AstraZeneca's Crestor (rosuvastatin), Merck's Zocor (simvastatin) and Pfizer's Lipitor (atorvastatin) among others. Generic statins 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 recently approved for HoFH, HeFH and ASCVD, and Sanofi's and Regeneron's PCSK9 inhibitor, Praluent, was recently approved for HeFH and ASCVD.

There are multiple product candidates in late stage development for HoFH, HeFH and ASCVD. CymaBay Therapeutic's (CymaBay) MBX-8025 (Phase 2) and Regeneron's RGEN-1500 (Phase 2) are in development for the treatment of HoFH. For hypercholesterolemia, including HeFH and ASCVD, drugs in development include oral CETPi, Merck's anacetrapib (Phase 3), Eli Lilly and Company's evacetrapib (recently discontinued Phase 3), and Amgen/Dezima's TA-8995 (Phase 2), current Esperion's oral product, ETC-1002 (completed Phase 2), The Medicines Company/Alnylam Pharmaceuticals, Inc.'s (Alnylam) injectable PCSK9 inhibitor, ALN-PCSsc (completed Phase 1), and Pfizer's injectable PCSK9 inhibitor, bococizumab (Phase 3).

The market for LDL lowering therapy is both large and competitive, and the diagram below depicts the opportunity for gemcabene in 2nd line oral therapy, especially with discontinuation of competing oral CETPi.

Competitive LDL-C Lowering Landscape



Fibrates, niacin and prescription fish oil are common therapies used to lower triglycerides in patients with severe hypertriglyceridemia. 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. Drugs that are in late stage development for SHTG include Ionis' volanesorsen (Phase 3).

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 we are 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 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 application (IND) 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 the FDA's 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 along with other information, including information about 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.

An IND automatically becomes effective 30 days after receipt by the FDA, unless before that time the FDA raises concerns or questions related to one or more proposed clinical trials 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; as well as (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 it 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 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.

Progress reports detailing the results of the clinical trials must be submitted at least annually to the FDA and, more frequently, if SAEs occur. Phase 1, Phase 2 and Phase 3 trials may not be completed successfully within any specified period, or at all.

After completion of the required clinical trials, 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, 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, currently exceeding $2,374,000 for fiscal year 2016, and the manufacturer and/or applicant under an approved NDA are also subject to annual product and establishment user fees, currently exceeding $114,000 per product and $585,000 per establishment. These fees are typically increased annually.

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. 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 in six to eight 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 compliant with cGMP, 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 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. 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. 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.

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 agency 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 listed drug and has been shown to be bioequivalent to the 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 listed drug, and can often be substituted by pharmacists under prescriptions written for the original 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 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 may 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 offerer/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 our 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 our revenues from the sale of our 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, the President 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.

We expect that additional state and federal healthcare reform measures will be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in reduced demand for our products or additional pricing pressure. We are unsure of the ways in which PPACA will continue to be challenged and amended in the 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, the company 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.

Foreign Regulation

In order to market any product outside of the United States, we 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 our products. Whether or not we obtain FDA approval for a product, we would need to obtain the necessary approvals by the comparable regulatory authorities of foreign countries before we 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 we obtain regulatory approval. Sales of any of our 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, we may 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. Our 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 us to maintain price levels high enough to realize an appropriate return on our 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 our products to be cost-effective compared to other available therapies, they may not cover our products after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow us to sell our 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 candidates that we are developing and could adversely affect our 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 the company 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 our products.

The marketability of any products for which we 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 we expect 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 we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Employees

As of May 2, 2016, we had eight employees, all of whom are full-time, two of whom hold Ph.D. or M.D. degrees, three of whom were engaged in research and development activities and five of whom were engaged in business development, finance, information systems, facilities, human resources or administrative support. We have begun a search for a Chief Medical Officer. None of our employees is represented by a labor union or subject to a collective bargaining agreement. We consider our relationship with our employees to be good.

Facilities

We lease an approximately 1,450 square foot facility in Northville, Michigan that is primarily used for administrative and research and development activities. The cancellable lease commenced on January 1, 2015 and, as amended, expires on December 31, 2016. We plan to terminate this lease in August 2016. In May 2016, we entered into a 3 year non-cancellable facility lease in Livonia, Michigan, commencing August 1, 2016 for approximately 5,300 square feet that will be used for the Company's headquarters. We believe that these facilities are adequate to meet our current needs, and that suitable additional alternative spaces will be available in the future on commercially reasonable terms.

Legal Proceedings

From time to time, we may be involved in various claims and legal proceedings relating to claims arising out of our operations. We are not currently a party to any legal proceedings that, in the opinion of our management, are likely to have a material adverse effect on our business. Regardless of outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

MANAGEMENT

Executive Officers and Directors

The following table sets forth certain information regarding our current executive officers and directors as of May 2, 2016:

NAME	AGE	POSITION(S)
Executive Officers		
Mina Sooch	48	President, Chief Executive Officer, Treasurer and Director
Jeffrey S. Mathiesen	55	Chief Financial Officer
Charles L. Bisgaier	62	Chief Scientific Officer and Chairman of the Board
Seth Reno	50	Chief Commercial Officer
David Lowenschuss	47	Chief Legal Officer and Secretary
Carmen Daniela Oniciu	59	Vice President of Preclinical Research and Development and Manufacturing
Non-Employee Directors		
Steve Gullans	63	Director
P. Kent Hawryluk(1)(2)(3)	47	Director
Kenneth Kousky(2)(3)	61	Director
Pedro Lichtinger(1)	61	Director
Andrew Sassine(1)(2)(3)	51	Director

(1) Member of the compensation committee.

(2) Member of the audit committee.

(3) Member of the nominating and corporate governance committee.

Executive Officers

Mina Sooch has served as our President and Chief Executive Officer and as a member of our board of directors since November 2014. Prior to joining us, she served from July 2012 to May 2014 as the President and Chief Executive Officer of ProNAi Therapeutics, Inc., a public clinical-stage oncology company that she co-founded and as a member of the board of directors from its founding in 2004 through May 2014 as well as a business development advisor from December 2010 to June 2012. In addition, Ms. Sooch founded Apjohn Ventures Fund, a venture capital firm that invests primarily in early-stage life sciences companies, and has served as its Managing Partner since its founding in 2003. She also serves as Manager of Tara Ventures I, LLC, an angel fund organized in 2002, for life sciences investments. Ms. Sooch also served as an entrepreneur in residence at North Coast Technology Investors LP from 2001 to 2002. Ms. Sooch co-founded three life sciences start-ups: ProNAi Therapeutics, Inc., Afmedica, Inc. and CytoPherx Inc. (formerly known as Nephrion Inc.). Ms. Sooch has served on over 10 private, public and non-profit venture capital boards including ProNAi Therapeutics, Inc., ZyStor Therapeutics, Inc., Asterand Inc., CytoPherx Inc., Svelte Medical Systems, Inc., Wolverine Venture Fund and Michigan Venture Capital Association. From 1993 to 2000, she last served as global account manager at Monitor Deloitte (formerly known as Monitor Company Group), a global strategy consulting firm based in Boston. Ms. Sooch received an M.B.A. from Harvard Business School and a B.S. in chemical engineering from Wayne State University. Our board of directors believes Ms. Sooch should serve as a director based on her extensive experience founding and developing biopharmaceutical companies and managing and negotiating venture capital investments and strategic transactions.

Jeffrey S. Mathiesen has served as our Chief Financial Officer since September 2015 and as a consultant to us from August 2015 until September 2015. Prior to joining us, Mr. Mathiesen served as Chief Financial Officer of Sunshine Heart, Inc., a publicly traded medical device company, from March 2011 to January 2015. From December 2005 to April 2010, Mr. Mathiesen served as Vice President and Chief Financial Officer of Zareba Systems, Inc., a manufacturer and marketer of medical products, perimeter fencing and security systems, which was purchased by Woodstream Corporation in April 2010. Mr. Mathiesen has held executive positions with publicly traded companies dating back to 1993, including vice president and chief financial officer positions. Mr. Mathiesen also serves as a director and audit committee chairman of Sun BioPharma, Inc., a publicly traded biopharmaceutical company that develops therapies for pancreatic diseases. Mr. Mathiesen received a B.S. in Accounting from the University of South Dakota and is also a Certified Public Accountant.

Dr. Charles Bisgaier, one of our co-founders, has served as our Chief Scientific Officer and Chairman of our board of directors since November 2014. He also currently serves as an Adjunct Associate Professor of Pharmacology at the University of Michigan. Prior to our founding, he served from September 2008 to November 2014 as the Chief Executive Manager for our 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., 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, and at BioSavita Inc., a privately held life sciences 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. Our board of directors 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 our product candidate gemcabene.

Seth Reno has served as our Chief Commercial Officer since August 2015. Prior to joining us, 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.

David Lowenschuss, one of our co-founders, has served as our Chief Legal Officer since November 2014 and was a member of our board of directors from November 2014 to April 2016. From 2008 to present, Mr. Lowenschuss has had a private legal practice (David H. Lowenschuss PLC) where he acts as counsel to a number of life science companies. Mr. Lowenschuss also co-founded Michigan Life Ventures, LLC and currently serves as its Chief Legal Manager. In 2008, Mr. Lowenschuss co-founded Michigan Life Therapeutics, LLC, where he served as Chief Legal Manager from 2008 to November 2014. Mr. Lowenschuss served as Corporate Counsel and later Michigan Legal Site Head at Pfizer, a public biopharmaceutical company, from 2004 to 2008. Prior to joining Pfizer, from 2001 to 2004, Mr. Lowenschuss was in-house counsel at the original Esperion. Mr. Lowenschuss has lectured at the

University of Michigan on various topics including historical perspectives on human subject research and also serves as a moot court judge at the University of Michigan Law School. He holds a J.D. from George Washington University and an M.U.P. and a B.A. from the University of Michigan. He is admitted to practice law in Michigan.

Dr. Carmen Daniela Oniciu has served as our Vice President of Preclinical Research and Development and Manufacturing since March 2015. Prior to joining us, Dr. Oniciu worked as an independent consultant focused on preclinical research and development and regulatory affairs related to chemistry, manufacturing and controls for pharmaceuticals and fine chemicals that span small molecules. Prior to that, from 2006 to February 2014, Dr. Oniciu served as Senior Director of Chemistry at Cerenis Therapeutics Holding SA, a French biotechnology company. Prior to joining Cerenis, from 2001 to 2004, Dr. Oniciu was Senior Director of Chemical Research and Development at the original Esperion, where she served as co-chair of the preclinical research team. Following Pfizer Inc.'s acquisition of the original Esperion, Dr. Oniciu served as Associate Director of Chemistry at Pfizer from 2004 to 2005. Prior to joining the original Esperion in 2001, Dr. Oniciu co-founded Alchem Laboratories Corporation, a custom research organization that specialized in drug design and process development support for the pharmaceutical industry. In addition, Dr. Oniciu has served as Courtesy Professor of Chemistry at the University of Florida at Gainesville since 2004. Dr. Oniciu holds a Ph.D. and an M.S. in organic chemistry and chemical engineering, both from the Polytechnic University of Bucharest in Romania.

Non-Employee Directors

Dr. Steve Gullans has served as a member of our board of directors since April 2016. He is currently Managing Director at Excel Venture Management, LLC (Excel), a Boston-based venture capital firm which he co-founded and where he has been employed since February 2008. At Excel, he focuses 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 Molecular Templates, Inc., a private biotechnology company, Cleveland HeartLab, Inc., a private cardiovascular testing company, and N-of-One, Inc., an oncology diagnostics 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., nanoMR Inc. which was acquired by DNA Electronics Ltd and Tetraphase Pharmaceuticals, Inc. which went public in 2013. 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. Our board of directors believes Dr. Gullans should serve as a director based on his extensive experience in the life sciences industry and his board experience.

P. Kent Hawryluk has served as a member of our board of directors since February 2015. He is the Co-Founder and has served as the Chief Business Officer of Avidity NanoMedicines LLC, a precision nanomedicines company, since January 2013. He was also Co-Founder and served as the Chief Executive Officer of MB2 LLC, a clinical-stage company focused on diabetes and obesity, from May 2014 to March 2016. MB2 was acquired by Novo Nordisk in October 2015. Previously, in January 2006, Mr. Hawryluk co-founded Marcadia Biotech Inc., which was acquired by Roche Holding Ltd., where he served as Chief Business Officer and Vice President, Business Development from January 2006 to April 2011. He currently serves as partner of Twilight Venture Partners, LLC, a private seed and early-stage life science venture capital fund. He was a founding partner of JEGI Capital, LLC, a venture capital fund co-sponsored by GE Capital Corp. that launched in 2000. Mr. Hawryluk holds a B.A. from Princeton University, an M.B.A. from Kellogg School of Management at Northwestern University, and an M.S. degree in biology from Indiana University-Purdue University Indianapolis. Our board of directors believes Mr. Hawryluk should serve as a director based on his experience founding and developing biopharmaceutical companies and his knowledge of the biopharmaceutical industry.

Kenneth Kousky has served as a member of our board of directors 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 Corporation, 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 University of Pennsylvania. Our board of directors believes Mr. Kousky should serve as a director based on his extensive financial and strategic business planning experience.

Pedro Lichtinger has served as a member of our board of directors since December 2015. He was the President and Chief Executive Officer of Asterias Biotherapeutics, Inc., 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. Mr. Lichtinger previously served as a director of BioTime, Inc. and Optimer Pharmaceuticals, Inc. Mr. Lichtinger holds an MBA degree from the Wharton School of Business and an engineering degree from the National University of Mexico. Our board of directors 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 our board of directors since May 2015. 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 CNS Response, Inc., a public psychiatric clinical decision support company and previously served on the board of directors of FluoroPharma Medical, Inc., a public biopharmaceutical company, and Acorn Energy, Inc., a public holding company focused on technology solutions for energy infrastructure asset management. Mr. Sassine also serves on the board of directors of Freedom Meditech, Inc., a private medical device company, and Comhear Inc., a private digital audio software and device company, where he is also the chairman of the board of directors. Mr. Sassine serves on the Strategic Advisory Board of MD Revolution Inc., a private digital health service company. Mr. Sassine has been a member of the Henry B. Tippie College of Business, University of Iowa Board of Advisors since 2009 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. Our board of directors believes Mr. Sassine should serve as a director based on his extensive experience in the public markets as well as his financial expertise.

Board Composition

The voting agreement entered into in connection with the closing of our Series A convertible preferred stock financing provides for two directors to be elected by the holders of a majority of our common stock, voting as a single class; two directors to be elected by the holders of a majority of our common stock and Series A convertible preferred stock, voting collectively as a single class; and one director to be elected by the

holders of our Series A convertible preferred stock, voting as a single class, who is designated as Mr. Kousky. Excel Venture Fund II, L.P. is entitled to designate one member of the board, who is initially Dr. Gullans. Mr. Gullans was appointed by the board of directors to fill the vacancy created by Mr. Lowenschuss's resignation. The voting agreement by which our directors were elected will terminate in connection with this offering and there will be no continuing contractual obligations regarding the election of our directors. Each of our current directors will continue to serve until the election and qualification of his or her successor, or his or her earlier death, resignation or removal.

Our business and affairs are organized under the direction of our board of directors. The board of directors currently consists of seven members. The primary responsibilities of our board of directors are to provide oversight, strategic guidance, counseling and direction to our management. Our board of directors meets on a regular basis and additionally as required.

Our board of directors has determined that all of our directors, except Ms. Sooch and Dr. Bisgaier, are independent directors, as defined by Rule 5605(a)(2) of the NASDAQ Listing Rules.

In accordance with the terms of our amended and restated certificate of incorporation and amended and restated bylaws, which will be effective immediately prior to the consummation of this offering, our board of directors will be divided into three classes, Class I, Class II and Class III, with members of each class serving staggered three-year terms.

Effective upon the closing of this offering, our board of directors will be comprised of the following classes:

- Class I, which will consist of Mr. Kousky and Dr. Bisgaier, whose terms will expire at our annual meeting of stockholders to be held in 2017;
- Class II, which will consist of Dr. Gullans and Mr. Hawryluk, whose terms will expire at our annual meeting of stockholders to be held in 2018; and
- Class III, which will consist of Mr. Lichtinger, Ms. Sooch and Mr. Sassine, whose terms will expire at our annual meeting of stockholders to be held in 2019.

Each director's term continues until the election and qualification of his successor, or his earlier death, resignation, or removal. Our amended and restated certificate of incorporation and amended and restated bylaws, which will be in effect immediately prior to the consummation of this offering, will authorize only our board of directors to fill vacancies on our board of directors unless the board determines that such vacancies shall be filled by stockholders. Any increase or decrease in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors. This classification of our board of directors may have the effect of delaying or preventing changes in control of our company. See "Description of Capital Stock — Anti-Takeover Provisions."

Board Leadership Structure

Our board of directors is currently chaired by our Chief Scientific Officer, Dr. Bisgaier, who has authority, among other things, to call and preside over meetings of our board of directors, to set meeting agendas and to determine materials to be distributed to the board of directors and, accordingly, has substantial ability to shape the work of the board of directors. The positions of our chairman of the board and Chief Executive Officer are presently separated. Separating these positions allows our Chief Executive Officer, Ms. Sooch, to focus on our day-to-day business, while allowing, Dr. Bisgaier, our co-founder who was also instrumental in the discovery and development of gemcabene, to lead the board of directors.

Role of the Board in Risk Oversight

One of the key functions of our board of directors is informed oversight of our risk management process. Our board of directors does not have a standing risk management committee, but rather administers this oversight function directly through the board of directors as a whole, as well as through various standing committees of our board of directors that address risks inherent in their respective areas of oversight. In particular, our board of directors is responsible for monitoring and assessing strategic risk exposure and our

audit committee has the responsibility to consider and discuss our major financial risk exposures and the steps our 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. Our nominating and corporate governance committee monitors the effectiveness of our corporate governance practices, including whether they are successful in preventing illegal or improper liability-creating conduct. Our compensation committee assesses and monitors whether any of our compensation policies and programs has the potential to encourage excessive risk-taking.

Committees of the Board of Directors

Our board of directors 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 our board of directors.

Audit Committee

Our audit committee is comprised of Mr. Kousky, Mr. Hawryluk and Mr. Sassine and Mr. Kousky is currently the chairman. Each member of our audit committee meets the requirements for independence under the current NASDAQ and SEC rules and regulations and is financially literate. In addition, our board of directors has determined that Mr. Kousky 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 on him any duties, obligations or liabilities that are greater than are generally imposed on members of our audit committee and our board of directors. Our audit committee is directly responsible for, among other things:

- § our accounting and financial reporting processes, including our financial statement audits and the integrity of our financial statements;
- § our compliance with legal and regulatory requirements;
- § the qualifications, independence and performance of our independent auditors; and
- § the preparation of the audit committee report to be included in our annual proxy statement.

Compensation Committee

Our compensation committee is currently comprised of Mr. Hawryluk, Mr. Lichtinger and Mr. Sassine and Mr. Hawryluk is currently the chairman. Each member of our 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 Internal Revenue Code of 1984, as amended, or the Code, and is a non-employee director as defined in Rule 16b-3 promulgated under the Exchange Act. Our compensation committee is responsible for, among other things:

- § evaluating, recommending, approving and reviewing executive officer and director compensation arrangements, plans, policies and programs;
- § administering our cash-based and equity-based compensation plans; and
- § making recommendations to our board of directors regarding any other board of director responsibilities relating to executive compensation.

Nominating and Corporate Governance Committee

Our nominating and corporate governance committee is comprised of Mr. Hawryluk, Mr. Kousky and Mr. Sassine and Mr. Sassine is currently the chairman. Each member of our nominating and corporate governance committee meets the requirements for independence under the current NASDAQ and SEC rules and regulations. As of the closing of this offering, we expect that the nominating and corporate governance committee will comply with the applicable rules and regulations of the NASDAQ and SEC. Our nominating and corporate governance committee is responsible for, among other things:

- § identifying, considering and recommending candidates for membership on our board of directors;
- § overseeing the process of evaluating the performance of our board of directors; and
- § advising our board of directors on other corporate governance matters.

Compensation Committee Interlocks and Insider Participation

We have established a compensation committee, which has and will make decisions relating to compensation of our executive officers. None of the directors serving on the compensation committee has ever been an executive officer or employee of ours. None of our executive officers currently serves, or has served during the last completed fiscal year, on the compensation committee or board of directors of any other entity that has one or more executive officers serving as a member of our board of directors or compensation committee.

Limitation on Liability and Indemnification of Directors and Officers

Our amended and restated certificate of incorporation and amended and restated bylaws, which will become effective immediately prior to the closing of this offering, limit our directors' liability to the fullest extent permitted under Delaware corporate law. Delaware corporate law provides that directors of a corporation will not be personally liable for monetary damages for breach of their fiduciary duties as directors, except for liability:

- for any transaction from which the director derives an improper personal benefit;
- for any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- under Section 174 of the Delaware General Corporation Law (unlawful payment of dividends or redemption of shares); or
- for any breach of a director's duty of loyalty to the corporation or its stockholders.

If the Delaware General Corporation Law is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of our directors shall be eliminated or limited to the fullest extent permitted by the Delaware General Corporation Law, as so amended.

Delaware law and our amended and restated certificate of incorporation and our amended and restated bylaws provide that we will, in certain situations, indemnify our directors and officers and may indemnify other employees and other agents, to the fullest extent permitted by law. Any indemnified person is also entitled, subject to certain limitations, to payment or reimbursement of reasonable expenses (including attorneys' fees and disbursements) in advance of the final disposition of the proceeding.

In addition, we have entered, and intend to continue to enter, into separate indemnification agreements with our directors and officers. These agreements, among other things, require us to indemnify our directors and officers for certain expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by a director or officer in any action or proceeding arising out of their services as one of our directors or officers or any other company or enterprise to which the person provides services at our request.

We maintain a directors' and officers' insurance policy pursuant to which our directors and officers are insured against certain liability for actions taken in their capacities as directors and officers. We believe that these provisions in our amended and restated certificate of incorporation and amended bylaws and these indemnification agreements are necessary to attract and retain qualified persons as directors and officers.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or control persons, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

EXECUTIVE OFFICER AND DIRECTOR COMPENSATION

Executive Officer Compensation

The following tables and accompanying narrative disclosure discuss the compensation awarded to, earned by, or paid to:

- Mina Sooch, our President, Chief Executive Officer, Treasurer and Director;
- Charles L. Bisgaier, Ph.D., our Chief Scientific Officer and Chairman of our Board of Directors; and
- Jeffrey S. Mathiesen, our Chief Financial Officer.

We refer to these three executive officers as the "named executive officers."

Summary Compensation Table

The following table presents summary information regarding the total compensation for services rendered in all capacities that was earned by our named executive officers during the fiscal years ended December 31, 2015 and 2014. Our named executive officers in 2015 were Mina Sooch, Charles L. Bisgaier, Ph.D. and Jeffrey S. Mathiesen.

NAME AND PRINCIPAL POSITION	YEAR	SALARY ($)[1]	STOCK AWARDS ($)[2]	OPTION AWARDS[3] ($)	TOTAL ($)
Mina Sooch	2015	315,000[4]	—	4,009	319,009
President, Chief Executive Officer and Treasurer	2014	—	56,000	—	56,000
Charles L. Bisgaier, Ph.D.	2015	270,000[5]	—	3,436	273,436
Chief Scientific Officer	2014	—	20,832	—	20,832
Jeffrey S. Mathiesen[6]	2015	104,833[7]	—	115,965[8]	220,798
Chief Financial Officer					

(1) We did not pay a salary, bonus, non-equity incentive plan compensation or any other cash compensation to any of our named executive officers during the year ended December 31, 2014. We did not pay any bonus or non-equity incentive plan compensation to any of our executive officers during the year ended December 31, 2015. As discussed further below, we entered into employee agreements with Ms. Sooch and Dr. Bisgaier in November 2014 that provided for grants of restricted stock during the fiscal year ended December 31, 2014 and salary payments commencing January 1, 2015.

(2) The amounts reported do not reflect the amounts actually received by our named executive officers. Instead, these amounts reflect the aggregate grant date fair value of each equity award granted to our named executive officers during the fiscal year ended December 31, 2014, 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 our financial statements included in this prospectus. As required by SEC rules, the amounts shown exclude the impact of estimated forfeitures related to service-based vesting conditions.

(3) The amounts reported in this column represent the aggregate grant date fair value of the stock options granted to our named executive officers during the year ended December 31, 2015 as computed in accordance with ASC 718. The assumptions used in calculating the aggregate grant date fair value of the stock options reported in this column are set forth in Note 9 to our financial statements included in this prospectus. The amounts reported in this column reflect the accounting cost for these stock options, and do not correspond to the actual economic value that may be received by our named executive officers from the stock options.

(4) Amount includes $35,000 in salary foregone by Ms. Sooch in exchange for a stock option award for 5,220 shares granted on June 29, 2015 as described in the table below under "— Outstanding Equity Awards at Fiscal Year-End."

(5) Amount includes $30,000 in salary foregone by Dr. Bisgaier in exchange for a stock option award for 4,474 shares granted on June 29, 2015 as described in the table below under "— Outstanding Equity Awards at Fiscal Year-End."

(6) Mr. Mathiesen provided consulting services to us during August and September 2015. He began serving as our Chief Financial Officer in September 2015.

(7) Amount includes $34,000 paid to The Mathiesen Group, Inc. for consulting services provided by Mr. Mathiesen.

(8) Amount includes $6,867 of aggregate grant date fair value of stock options granted to Mr. Mathiesen in connection with the consulting agreement, computed as described in note (3) above.

Agreements with Our Named Executive Officers

We have entered into written employment agreements with each of our named executive officers, as described below. For a discussion of the severance pay and other benefits to be provided in connection with a termination of employment and/or a change in control under the arrangements with our named executive officers, please see "— Potential Payments Upon Termination or Change in Control" below.

Each of our named executive officers has also executed our standard form of confidential information and invention assignment agreement.

Employment Agreement with Mina Sooch

We initially entered into an employment agreement with Ms. Sooch in November 2014 that, as amended, governs the terms of her employment with us. Under the terms of this agreement, Ms. Sooch is entitled to an annual base salary of $350,000 beginning on January 1, 2015. Ms. Sooch agreed to defer 20% of her salary until June 30, 2015, to be paid in cash or stock at Ms. Sooch's election. In June 2015, we granted her a fully-vested stock option exercisable for 5,220 shares of our common stock, at an exercise price equal to $1.34 per share, in satisfaction of our obligations under such deferral arrangement. Effective February 29, 2016, Ms. Sooch agreed to defer 25% of her base salary from March 1, 2016 through the earlier of (i) the closing of an arms-length equity financing (including a public financing); (ii) a change of control of the Company; or (iii) June 30, 2016. Pursuant to the employee agreement, Ms. Sooch was granted 641,232 shares of common stock, with 320,616 shares vesting immediately and the other 320,616 shares vesting in 24 equal monthly installments at the end of each month beginning in November 2014, subject to continued service.

Employment Agreement with Charles L. Bisgaier, Ph.D.

We initially entered into an employment agreement with Dr. Bisgaier in November 2014 that, as amended, governs the terms of his employment with us. Under the terms of this agreement, Dr. Bisgaier is entitled to an annual base salary of $300,000 beginning on January 1, 2015. Dr. Bisgaier agreed to defer 20% of his salary from January 1, 2015 until June 30, 2015, to be paid in cash or stock at Dr. Bisgaier's election. In June 2015, we granted him a fully-vested stock option exercisable for 4,474 shares of our common stock, with an exercise price equal to $1.34 per share, in satisfaction of our obligations under such deferral arrangement. Effective February 29, 2016, Dr. Bisgaier agreed to defer 25% of his base salary from March 1, 2016 through the earlier of (i) the closing of an arms-length equity financing (including a public financing); (ii) a change of control of the Company; or (iii) June 30, 2016. In connection with the merger with MLT, we agreed to issue to Dr. Bisgaier 1,192,690 shares of our common stock, of which 238,538 shares vest in 18 equal monthly installments at the end of each month beginning in November 2014, subject to continued service.

Employment Agreement with Jeffrey S. Mathiesen

We initially entered into a letter agreement with Mr. Mathiesen in September 2015 that governs the terms of his employment with us. Under the terms of this agreement, as amended, Mr. Mathiesen is entitled to an annual base salary of $250,000. Effective February 29, 2016, Mr. Mathiesen agreed to defer 25% of his base salary from March 1, 2016 through the earlier of (i) the closing of an arms-length equity financing (including a public financing); (ii) a change of control of the Company; or (iii) June 30, 2016. Mr. Mathiesen is also entitled to a one-time relocation and housing/travel expense reimbursement of $50,000 beginning 30 days following the close of the Company's initial public offering. Pursuant to the agreement, Mr. Mathiesen was granted an option exercisable for 48,093 shares of our common stock,

vesting in 36 equal monthly installments at the end of each month, and Mr. Mathiesen has the right to receive, upon a financing and establishment of a larger option pool, additional equity awards so that his holdings represent 1% of our total capitalization on a fully-diluted basis, which right will be satisfied by the grants of options upon the effectiveness of this registration statement, as discussed further below.

Amended Employment Agreements with Named Executive Officers

We have entered into new employment agreements with Ms. Sooch, Dr. Bisgaier and Mr. Mathiesen to be effective on the closing of the offering that will supersede the prior agreements and govern the terms of their employment with us (the Amended Employment Agreements). The initial term (the Initial Term) of each Amended 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 such officer of its intention not to renew the employment period. Under the terms of the Amended Employment Agreement, Ms. Sooch, Dr. Bisgaier and Mr. Mathiesen are entitled to annual base salaries of $425,000, $300,000 and $325,000, respectively, each reviewed at least annually.

Each Amended Employment Agreement also entitles such officer to, among other benefits, the following compensation: (i) eligibility to receive an annual cash bonus of up to a percentage of such officer's annual base salary as specified in his or her individual Amended Employment Agreement at the sole discretion of the board and as determined by the Compensation Committee commensurate with the policies and practices applicable to other senior executive officers of the Company; (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 (the Plans); and (iii) participation in welfare benefit plans, practices, policies and programs provided by the Company 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 our other senior executive officers. Each such officer is entitled to retain all shares of our common stock and stock options he or she held as of the Effective Date (the Officer's Equity), and to the extent such officer remains employed as of the closing date of a change in control or, with respect to Ms. Sooch and Dr. Bisgaier, an initial public offering, the Officer's Equity will fully vest, effective as of the closing date of the change in control or, with respect to Ms. Sooch and Dr. Bisgaier, the initial public offering date. Ms. Sooch, Dr. Bisgaier and Mr. Mathiesen are additionally entitled to certain severance benefits pursuant to their employment agreements, the terms of which are described below under "— Potential Payments Upon Termination or Change in Control."

On April 25, 2016, our Compensation Committee approved the award of options to purchase 600,000, 150,000 and 210,000 shares of our common stock to Ms. Sooch, Dr. Bisgaier and Mr. Mathiesen, respectively, with a per share exercise price equal to the initial public offering price, in each case, to be granted in connection with this offering. For Ms. Sooch, 240,000 shares underlying her award are subject to performance conditions, with 120,000 shares to be earned upon the initiation of our first clinical trial and 120,000 shares to be earned upon the initiation of our second clinical trial.

Potential Payments Upon Termination or Change in Control

Pursuant to the Amended Employment Agreements, regardless of the manner in which a named executive officer's service terminates, the named executive officer is entitled to receive amounts earned during his or her term of service, including salary and other benefits. In addition, each of our named executive officers is eligible to receive certain benefits pursuant to his or her agreement with us described above under "— Agreements with our Named Executive Officers."

The Company is permitted to terminate the employment of Ms. Sooch, Dr. Bisgaier and Mr. Mathiesen 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 the Company 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 the Company 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 the Company 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 the Company 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 the Company and not revoking a general release of claims in favor of the Company and certain related parties, the Company 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).

In the event of a change in control during the employment period or within two years after a change in control, if the Company 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, the Company 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 the 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 the Company). In addition, the Company shall provide such officer the Conditional Benefits minus such officer's severance amount.

Under the employment agreements, "Termination for Cause" means a termination of the officer's employment by the Company 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 the Company, (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 the Company, (C) the conviction of the officer of, or the officer's entry of a no contest or nolo contendre plea to, a felony, (D) material breach by the officer of the officer's fiduciary obligations as an officer or director of the Company, (E) a persistent failure by the officer to perform the duties and responsibilities of the officer's employment hereunder, 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 the Company 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 the Company. 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 the Company. 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 the Company.

Under the employment agreements, "Termination for Good Reason" means a termination of the officer's employment by such officer within 30 days of the Company'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 the Company; (B) the removal of the officer by the Company 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 the Company to 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.

Outstanding Equity Awards at Fiscal Year-End

No named executive officer was granted any stock options prior to January 1, 2015. The following table sets forth information regarding restricted stock awards and outstanding stock options held by our named executive officers as of December 31, 2015:

			OPTION AWARDS[1]				STOCK AWARDS[2]	
NAME	GRANT DATE	VESTING COMMENCEMENT DATE	NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS EXERCISABLE (#)	NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS UNEXERCISABLE (#)	OPTION EXERCISE PRICE ($)	OPTION EXPIRATION DATE	NUMBER OF SHARES THAT HAVE NOT VESTED (#)	MARKET VALUE OF SHARES THAT HAVE NOT VESTED ($)[3]
Mina Sooch	November 1, 2014	November 1, 2014[4]					133,590	778,830
	June 29, 2015	June 29, 2015[5]	5,220	—	1.34	June 28, 2025		
Charles L. Bisgaaier, Ph.D.	November 1, 2014	November 1, 2014[6]					53,009	309,043
	June 29, 2015	June 29, 2015[5]	4,474	—	1.34	June 28, 2025		
Jeffrey S. Mathiesen	September 25, 2015	September 25, 2015[5]	3,207	—	3.59	September 24, 2025		
	September 25, 2015	September 25, 2015[7]	5,344	42,749	3.59	September 24, 2025		

(1) All of the outstanding stock option awards were granted under our 2015 Plan.

(2) Unless otherwise noted, all of the shares of restricted stock were granted prior to our adoption of the 2015 Plan and under an employee agreement with each named executive officer, the terms of which employee agreements are described above under "— Agreements with our Named Executive Officers."

(3) Market value is calculated by multiplying the number of shares that were unvested as of December 31, 2015 by $5.83, which was the fair market value of one share of our common stock based upon the latest independent valuation as of December 31, 2015.

(4) 50% of the shares vested on the Vesting Commencement Date with the remaining vesting monthly in equal increments over a 24-month period beginning on November 30, 2014. The awards are also eligible for accelerated vesting on the closing of this offering, a qualifying termination or change of control as described above under "— Potential Payments Upon Termination or Change of Control."

(5) Options fully vested upon grant.

(6) The shares vest monthly in equal increments over an 18-month period beginning on November 30, 2014. The awards are also eligible for accelerated vesting on the closing of this offering, a qualifying termination or change of control as described above under "— Potential Payments Upon Termination or Change of Control."

(7) The shares underlying the option vest monthly in equal increments over a 36 month period beginning on September 30, 2015.

Employee Benefit and Stock Plans

Amended and Restated 2015 Equity Incentive Plan

Our board of directors initially adopted the 2015 Plan in April 2015, and our stockholders approved the 2015 Plan in April 2015. In April 2016, our board of directors and stockholders approved the amendment and restatement of the 2015 Plan in order to increase the share reserve under the 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 will become effective immediately upon the execution and delivery of the underwriting agreement related to this offering. We refer to such amended and restated plan as the 2015 Plan.

Stock Awards. The 2015 Plan provides for the grant of incentive stock options (ISOs), nonstatutory stock options (NSOs), stock appreciation rights, restricted stock awards, restricted stock unit awards (RSUs), performance-based stock awards, and other forms of equity compensation, or collectively, stock awards, all of which may be granted to employees, including officers, non-employee directors and consultants of us and our affiliates. Additionally, the 2015 Plan provides for the grant of performance cash awards. ISOs may be granted only to employees. All other awards may be granted to employees, including officers, and to non-employee directors and consultants.

Share Reserve. When initially adopted, the aggregate number of shares of our common stock that may be issued pursuant to stock awards under the 2015 Plan was 1,000,000 shares. In addition, the maximum number of shares of our common stock that were issuable upon the exercise of ISOs under our 2015 Plan is 1,000,000 shares.

The aggregate number of shares of our common stock that may be issued pursuant to stock awards under the 2015 Plan after the amendment and restatement of our 2015 Plan becomes effective is 2,400,000 shares plus the number of shares that are Returning Shares (as defined in the 2015 Plan). The number of shares that will remain available for issuance under the 2015 Plan at the closing of this offering will be 574,800. Additionally, the number of shares of our common stock reserved for issuance under our 2015 Plan will automatically increase on January 1 of each year, beginning on January 1, 2017 and 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 our board of directors. The maximum number of shares of our common stock that may be issued upon the exercise of ISOs under our 2015 Plan is 4,800,000 shares.

No person may be granted stock awards covering more than 1,000,000 shares of our common stock under our 2015 Plan during any calendar year pursuant to stock options, stock appreciation rights and other stock awards whose value is determined by reference to an increase over an exercise or strike price of at least 100% of the fair market value on the date the stock award is granted. Additionally, no person may be granted in a calendar year a performance stock award covering more than 1,000,000 shares of our common stock or a performance cash award having a maximum value in excess of $1,000,000. Such limitations are designed to help ensure that any deductions to which we would otherwise be entitled with respect to such awards will not be subject to the $1,000,000 limitation on the income tax deductibility of compensation paid to any covered executive officer imposed by Section 162(m) of the Code.

If a stock award granted under the 2015 Plan expires or otherwise terminates without being exercised in full, or is settled in cash, the shares of our common stock not acquired pursuant to the stock award again will become available for subsequent issuance under the 2015 Plan. In addition, the following types of shares of our common stock under the 2015 Plan may become available for the grant of new stock awards under the 2015 Plan: (1) shares that are forfeited to or repurchased by us prior to becoming fully vested; (2) shares withheld to satisfy income or employment withholding taxes; or (3) shares used to pay the exercise or purchase price of a stock award. Shares issued under the 2015 Plan may be previously unissued shares or reacquired shares bought by us on the open market. As of the date hereof, no awards have been granted and no shares of our common stock have been issued under the 2015 Plan.

Administration. Our board of directors, or a duly authorized committee thereof, has the authority to administer the 2015 Plan. Our board of directors may also delegate to one or more of our officers the authority to (1) designate employees (other than other officers) to be recipients of certain stock awards, and (2) determine the number of shares of common stock to be subject to such stock awards. Subject to the terms of the 2015 Plan, our board of directors or the authorized committee, referred to herein 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 vesting schedule applicable to a stock award. Subject to the limitations set forth below, 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.

The plan administrator has the authority to modify outstanding awards under our 2015 Plan. Subject to the terms of our 2015 Plan, the plan administrator has the authority to reduce the exercise, purchase or strike price of any outstanding stock award, cancel any outstanding stock award in exchange for new stock awards, cash or other consideration, or take any other action that is treated as a repricing under generally accepted accounting principles, with the consent of any adversely affected participant.

Stock Options. ISOs and NSOs are granted pursuant to 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 2015 Plan, provided that the exercise price of a stock option generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Options granted under the 2015 Plan vest at the rate specified by the plan administrator.

The plan administrator determines the term of stock options granted under the 2015 Plan, up to a maximum of ten years. Unless the terms of an optionholder's stock option agreement provide otherwise, if an optionholder's service relationship with us, or any of our affiliates, ceases for any reason other than disability, death or cause, the optionholder may generally exercise any vested options for a period of three months following the cessation of service. The option term may be extended in the event that exercise of the option following such a termination of service is prohibited by applicable securities laws or our insider trading policy. If an optionholder's service relationship with us or any of our affiliates ceases due to disability or death, or an optionholder dies within a certain period following cessation of service, the optionholder or a beneficiary may generally exercise any vested options for a period of 12 months in the event of disability and 18 months in the event of death. In the event of a termination for cause, options generally terminate immediately upon the termination of the individual for cause. In no event may an option be exercised beyond the expiration of its term.

Acceptable consideration for the purchase of common stock issued upon the exercise of a stock option will be determined by the plan administrator and may include (1) cash, check, bank draft or money order, (2) a broker-assisted cashless exercise, (3) the tender of shares of our common stock previously owned by the optionholder, (4) a net exercise of the option if it is an NSO, and (5) other legal consideration approved by the plan administrator.

Unless the plan administrator provides otherwise, options generally are not transferable except by will, the laws of descent and distribution, or pursuant to a domestic relations order. An optionholder may designate a beneficiary, however, who may exercise the option following the optionholder's death.

Tax Limitations On Incentive Stock Options. The aggregate fair market value, determined at the time of grant, of our common stock with respect to ISOs that are exercisable for the first time by an optionholder during any calendar year under all of our stock plans may not exceed $100,000. Options or portions thereof that exceed such limit will generally be treated as NSOs. No ISO may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our affiliates unless (1) the option exercise price is at least 110% of the fair market

value of the stock subject to the option on the date of grant, and (2) the term of the ISO does not exceed five years from the date of grant.

Restricted Stock Awards. Restricted stock awards are granted pursuant to restricted stock award agreements adopted by the plan administrator. Restricted stock awards may be granted in consideration for (1) cash, check, bank draft or money order, (2) services rendered to us or our affiliates, or (3) any other form of legal consideration. Common stock acquired under a restricted stock award may, but need not, be subject to a share repurchase option in our favor in accordance with a vesting schedule to be determined by the plan administrator. A restricted stock award may be transferred only upon such terms and conditions as set by the plan administrator. Except as otherwise provided in the applicable award agreement, restricted stock awards that have not vested may be forfeited or repurchased by us upon the participant's cessation of continuous service for any reason.

Restricted Stock Unit Awards. Restricted stock unit awards are granted pursuant to restricted stock unit award agreements adopted by the plan administrator. Restricted stock unit awards may be granted in consideration for any form of legal consideration. A restricted stock unit award may be settled by cash, delivery of stock, a combination of cash and stock as deemed appropriate by the plan administrator, or in any other form of consideration set forth in the restricted stock unit award agreement. Additionally, dividend equivalents may be credited in respect of shares covered by a restricted stock unit award. Except as otherwise provided in the applicable award agreement, restricted stock units that have not vested will be forfeited upon the participant's cessation of continuous service for any reason.

Stock Appreciation Rights. Stock appreciation rights are granted pursuant to stock appreciation grant agreements adopted by the plan administrator. The plan administrator determines the strike price for a stock appreciation right, which generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Upon the exercise of a stock appreciation right, we will pay the participant an amount equal to the product of (1) the excess of the per share fair market value of our common stock on the date of exercise over the strike price, multiplied by (2) the number of shares of common stock with respect to which the stock appreciation right is exercised. A stock appreciation right granted under the 2015 Plan vests at the rate specified in the stock appreciation right agreement as determined by the plan administrator.

The plan administrator determines the term of stock appreciation rights granted under the 2015 Plan, up to a maximum of ten years. Unless the terms of a participant's stock appreciation right agreement provides otherwise, if a participant's service relationship with us or any of our affiliates ceases for any reason other than cause, disability or death, the participant may generally exercise any vested stock appreciation right for a period of three months following the cessation of service. The stock appreciation right term may be further extended in the event that exercise of the stock appreciation right following such a termination of service is prohibited by applicable securities laws. If a participant's service relationship with us, or any of our affiliates, ceases due to disability or death, or a participant dies within a certain period following cessation of service, the participant or a beneficiary may generally exercise any vested stock appreciation right for a period of 12 months in the event of disability and 18 months in the event of death. In the event of a termination for cause, stock appreciation rights generally terminate immediately upon the occurrence of the event giving rise to the termination of the individual for cause. In no event may a stock appreciation right be exercised beyond the expiration of its term.

Performance Awards. The 2015 Plan permits the grant of performance-based stock and cash awards that may qualify as performance-based compensation that is not subject to the $1,000,000 limitation on the income tax deductibility of compensation paid to a covered executive officer imposed by Section 162(m) of the Code. To help assure that the compensation attributable to performance-based awards will so qualify, our compensation committee can structure such awards so that stock or cash will be issued or paid pursuant to such award only after the achievement of certain pre-established performance goals during a designated performance period.

The performance goals that may be selected include one or more of the following: (1) earnings (including earnings per share and net earnings); (2) earnings before interest, taxes and depreciation; (3) earnings before interest, taxes, depreciation and amortization; (4) earnings before interest, taxes, depreciation, amortization and legal settlements; (5) earnings before interest, taxes, depreciation, amortization, legal settlements and other income (expense); (6) earnings before interest, taxes, depreciation, amortization, legal settlements, other income (expense) and stock-based compensation; (7) earnings before interest, taxes, depreciation, amortization, legal settlements, other income (expense), stock-based compensation and changes in deferred revenue; (8) total stockholder return; (9) return on equity or average stockholder's equity; (10) return on assets, investment or capital employed; (11) stock price; (12) margin (including gross margin); (13) income (before or after taxes); (14) operating income; (15) operating income after taxes; (16) pre-tax profit; (17) operating cash flow; (18) sales or revenue targets; (19) increases in revenue or product revenue; (20) expenses and cost reduction goals; (21) improvement in or attainment of working capital levels; (22) economic value added (or an equivalent metric); (23) market share; (24) cash flow; (25) cash flow per share; (26) share price performance; (27) debt reduction; (28) implementation or completion of projects or processes (including, without limitation, clinical trial initiation, clinical trial enrollment, clinical trial results, new and supplemental indications for existing products, regulatory filing submissions, regulatory filing acceptances, regulatory or advisory committee interactions, regulatory approvals and product supply); (29) stockholders' equity; (30) capital expenditures; (31) debt levels; (32) operating profit or net operating profit; (33) workforce diversity; (34) growth of net income or operating income; (35) billings; (36) bookings; (37) employee retention; (38) initiation of phases of clinical trials and/or studies by specific dates; (39) patient enrollment rates; (40) budget management; (41) submission to, or approval by, a regulatory body (including, but not limited to the U.S. Food and Drug Administration) of an applicable filing or a product candidate; (42) regulatory milestones; (43) progress of internal research or clinical programs; (44) progress of partnered programs; (45) partner satisfaction; (46) timely completion of clinical trials; (47) submission of INDs and new drug applications and other regulatory achievements; (48) research progress, including the development of programs; (49) strategic partnerships or transactions (including in-licensing and out-licensing of intellectual property); and (50) to the extent that an award is not intended to comply with Section 162(m) of the Code, other measures of performance selected by our board of directors.

The performance goals may be based on a company-wide basis, with respect to one or more business units, divisions, affiliates, or business segments, and in either absolute terms or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Unless specified otherwise (i) in the award agreement at the time the award is granted or (ii) in such other document setting forth the performance goals at the time the goals are established, we will appropriately make adjustments in the method of calculating the attainment of performance goals as follows: (1) to exclude restructuring and/or other nonrecurring charges; (2) to exclude exchange rate effects; (3) to exclude the effects of changes to generally accepted accounting principles; (4) to exclude the effects of any statutory adjustments to corporate tax rates; (5) to exclude the effects of any "extraordinary items" as determined under generally accepted accounting principles; (6) to exclude the dilutive effects of acquisitions or joint ventures; (7) to assume that any business divested by us achieved performance objectives at targeted levels during the balance of a performance period following such divestiture; (8) to exclude the effect of any change in the outstanding shares of our common stock by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common stockholders other than regular cash dividends; (9) to exclude the effects of stock-based compensation and the award of bonuses under our bonus plans; (10) to exclude costs incurred in connection with potential acquisitions or divestitures that are required to be expensed under generally accepted accounting principles; (11) to exclude the goodwill and intangible asset impairment charges that are required to be recorded under generally accepted accounting principles; (12) to exclude the effect of any other unusual, non-recurring gain or loss or other extraordinary item; and (13) to exclude the effects of the timing of acceptance for review and/or approval of submissions to the FDA

or any other regulatory body. In addition, we retain the discretion to reduce or eliminate the compensation or economic benefit due upon attainment of the performance goals and to define the manner of calculating the performance criteria we select to use for such performance period. The performance goals may differ from participant to participant and from award to award.

Other Stock Awards. The plan administrator may grant other awards based in whole or in part by reference to our common stock. The plan administrator will set the number of shares under the stock award and all other terms and conditions of such awards.

Changes to Capital Structure. In the event that there is a specified type of change in our 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 2015 Plan, (2) the class and maximum number of shares by which the share reserve may increase automatically each year, (3) the class and maximum number of shares that may be issued upon the exercise of ISOs, (4) the class and maximum number of shares subject to stock awards that can be granted in a calendar year (as established under the 2015 Plan pursuant to Section 162(m) of the Code) and (5) the class and number of shares and exercise price, strike price, or purchase price, if applicable, of all outstanding stock awards.

Corporate Transactions. In the event of certain specified significant corporate transactions, the plan administrator has the discretion to take any of the following actions with respect to stock awards:

- arrange for the assumption, continuation or substitution of a stock award by a surviving or acquiring entity or parent company;
- arrange for the assignment of any reacquisition or repurchase rights held by us to the surviving or acquiring entity or parent company;
- accelerate the vesting of the stock award and provide for its termination prior to the effective time of the corporate transaction;
- arrange for the lapse of any reacquisition or repurchase right held by us;
- cancel or arrange for the cancellation of the stock award in exchange for such cash consideration, if any, as our board of directors may deem appropriate; or
- make a payment equal to the excess of (1) the value of the property the participant would have received upon exercise of the stock award over (2) the exercise price otherwise payable in connection with the stock award.

Our plan administrator is not obligated to treat all stock awards, even those that are of the same type, in the same manner.

Under the 2015 Plan, a corporate transaction is generally the consummation of (1) a sale or other disposition of all or substantially all of our consolidated assets, (2) a sale or other disposition of at least 90% of our outstanding securities, (3) a merger, consolidation or similar transaction following which we are not the surviving corporation, or (4) a merger, consolidation or similar transaction following which we are the surviving corporation but the shares of our common stock outstanding immediately prior to such transaction are converted or exchanged into other property by virtue of the transaction.

Change of Control. The plan administrator may provide, in an individual award agreement or in any other written agreement between a participant and us that the stock award will be subject to additional acceleration of vesting and exercisability in the event of a change of control. For example, certain of our employees may receive an award agreement that provides for vesting acceleration upon the individual's termination without cause or resignation for good reason (including a material reduction in the individual's base salary, duties, responsibilities or authority, or a material relocation of the individual's principal place of employment with us) in connection with a change of control. Under the 2015 Plan, a change of control is generally (1) the acquisition by a person or entity of more than 50% of our combined voting power other than by merger, consolidation or similar transaction; (2) a consummated merger, consolidation or similar transaction immediately after which our 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 our consolidated assets; or (4) the replacement of a majority of the directors who were on the board of directors at the time the 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.

Amendment and Termination. Our board of directors has the authority to amend, suspend, or terminate our 2015 Plan, provided that such action does not materially impair the existing rights of any participant without such participant's written consent. No ISOs may be granted after the tenth anniversary of the date our board of directors adopted our 2015 Plan.

2016 Employee Stock Purchase Plan

In April 2016, our board of directors and stockholders approved the 2016 Employee Stock Purchase Plan (ESPP), in order to enable eligible employees to purchase shares of our common stock at a discount following the date of this offering. The ESPP will become effective immediately upon the execution and delivery of the underwriting agreement related to this offering. The purpose of the ESPP is to retain the services of new employees and secure the services of new and existing employees while providing incentives for such individuals to exert maximum efforts toward our success and that of our affiliates.

Share Reserve. Following this offering, the ESPP authorizes the issuance of 150,000 shares of our common stock pursuant to purchase rights granted to our employees or to employees of any of our designated affiliates. The number of shares of our common stock reserved for issuance will automatically increase on January 1 of each calendar year, from January 1, 2017 (assuming the ESPP becomes effective before such date) through January 1, 2026 by the least of (1) 1.0% of the total number of shares of our common stock outstanding on December 31 of the preceding calendar year and (2) 75,000 shares. The ESPP is intended to qualify as an "employee stock purchase plan" within the meaning of Section 423 of the Code. As of the date hereof, no shares of our common stock have been purchased under the ESPP.

Administration. Our board of directors has delegated its authority to administer the ESPP to our compensation committee. The ESPP is implemented through a series of offerings of purchase rights to eligible employees. Under the ESPP, we may specify offerings with durations of not more than 27 months, and may specify shorter purchase periods within each offering. Each offering will have one or more purchase dates on which shares of our common stock will be purchased for employees participating in the offering. An offering may be terminated under certain circumstances.

Payroll Deductions. Generally, all regular employees, including executive officers, employed by us or by any of our designated affiliates, may participate in the ESPP and may contribute, normally through payroll deductions, up to an amount determined by the board of directors, but not exceeding 15% of their earnings for the purchase of our common stock under the ESPP. Unless otherwise determined by our board of directors, common stock will be purchased for accounts of employees participating in the ESPP at a price per share equal to the lower of (1) 85% of the fair market value of a share of our common stock on the first date of an offering or (2) 85% of the fair market value of a share of our common stock on the date of purchase.

Limitations. Employees may have to satisfy one or more of the following service requirements before participating in the ESPP, as determined by our board of directors: (1) customarily employed for more than 20 hours per week, (2) customarily employed for more than five months per calendar year or (3) continuous employment with us or one of our affiliates for a period of time, not to exceed two years. No employee may purchase shares under the ESPP at a rate in excess of $25,000 worth of our common stock based on the fair market value per share of our common stock at the beginning of an offering for each year such a purchase right is outstanding. Finally, no employee will be eligible for the grant of any purchase rights under the ESPP if immediately after such rights are granted, such employee has voting power over 5% or more of our outstanding capital stock measured by vote or value pursuant to Section 424(d) of the Code.

Changes to Capital Structure. In the event that there occurs a change in our capital structure through such actions as a stock split, merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or similar transaction, the board of directors will make appropriate adjustments to (1) the number of shares reserved under the ESPP, (2) the maximum number of shares by which the share reserve may increase automatically each year and (3) the number of shares and purchase price of all outstanding purchase rights.

Corporate Transactions. In the event of certain significant corporate transactions, including the consummation of: (1) a sale of all our assets, (2) the sale or disposition of 90% of our outstanding securities, (3) a merger or consolidation where we do not survive the transaction and (4) a merger or consolidation where we do survive the transaction but the shares of our common stock outstanding immediately prior to such transaction are converted or exchanged into other property by virtue of the transaction, any then-outstanding rights to purchase our stock under the ESPP may be assumed, continued or substituted for by any surviving or acquiring entity (or its parent company). If the surviving or acquiring entity (or its parent company) elects not to assume, continue or substitute for such purchase rights, then the participants' accumulated payroll contributions will be used to purchase shares of our common stock within ten business days prior to such corporate transaction, and such purchase rights will terminate immediately.

Plan Amendments, Termination. Our board of directors has the authority to amend or terminate our ESPP, provided that except in certain circumstances any such amendment or termination may not materially impair any outstanding purchase rights without the holder's consent. We will obtain stockholder approval of any amendment to our ESPP as required by applicable law or listing requirements.

Non-Employee Director Compensation

Our non-employee directors currently receive share-based compensation which is intended to encourage non-employee directors to continue to serve on our board of directors, 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 the Company do not receive any additional compensation for Board service.

In the year ended December 31, 2014, we did not have any non-employee directors; therefore, we did not pay any fees to, make any equity awards or non-equity awards to, or pay any other compensation to non-employee members of our board of directors and none of our non-employee directors held any outstanding equity awards as of December 31, 2014.

The following table provides compensation information for the fiscal year ended December 31, 2015 for each non-employee member of our Board.

Name	Stock Awards ($)[1]	Option Awards ($)[1][2]	Total ($)
P. Kent Hawryluk[3]	6,700	—	6,700
Kenneth Kousky[4]	—	6,271	6,271
Pedro Lichtinger[5]	—	71,000	71,000
Andrew Sassine[6]	—	25,698	25,698

(1) The amounts reported do not reflect the amounts actually received by our non-employee directors. Instead, these amounts reflect the aggregate grant date fair value of each equity award granted to our non-employee directors during the fiscal year ended December 31, 2015, as computed in accordance with ASC 718. Assumptions used in the calculation of these

amounts are included in Note 9 to our financial statements included in this prospectus. As required by SEC rules, the amounts shown exclude the impact of estimated forfeitures related to service-based vesting conditions.

(2) Stock option awards were granted under our 2015 Plan.

(3) Reflects 32,062 shares of restricted stock awarded upon Mr. Hawryluk's appointment as director. The shares vest quarterly over a two-year period commencing in February 2015. The amounts reported represent the grant date fair value of the shares which is based on the share price of our common stock on the grant date of $0.209.

(4) Reflects stock options for 8,016 shares of common stock upon Mr. Kousky's appointment as director. The options vest monthly over a 12-month period commencing in June 2015. The amounts reported represent the grant date fair value of the stock options. Valuation assumptions used in determining the grant date fair value are included in Note 9 to our financial statements included in this prospectus. The grant date fair value of each stock option was $0.783.

(5) Reflects stock options for 32,062 shares of common stock upon Mr. Lichtinger's appointment as director. The options vest monthly over a two-year period commencing in December 2015. The amounts reported represent the grant date fair value of the stock options. Valuation assumptions used in Black-Scholes option-pricing model in determining the grant date fair value are: expected stock price volatility, 72.0%; expected life of options, 5.5 years; expected dividend yield, 0%; and, risk free interest rate, 1.8%. The grant date fair value of each stock option was $2.214.

(6) Reflects stock options for 32,062 shares of common stock upon Mr. Sassine's appointment as director. The options vest monthly over a two-year period commencing in June 2015. The amounts reported represent the grant date fair value of the stock options. Valuation assumptions used in determining the grant date fair value are included in Note 9 to our financial statements included in this prospectus. The grant date fair value of each stock option was $0.802.

As of December 31, 2015, Mr. Hawryluk had 32,062 shares of restricted stock outstanding and each of the following non-employee directors had shares underlying outstanding stock options as follows: Mr. Kousky, 8,016; Mr. Lichtinger, 32,062; and Mr. Sassine, 32,062.

We intend to adopt a policy for compensating our non-employee directors with a combination of cash and equity that would become effective following the closing of this offering.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following includes a summary of transactions since January 1, 2012 to which we have been a party, in which the amount involved in the transaction exceeded $120,000, and in which any of our directors, executive officers or, to our knowledge, beneficial owners of more than 5% of our capital stock or any member of the immediate family of any of the foregoing persons had or will have a direct or indirect material interest, other than equity and other compensation, termination, change of control and other arrangements, which are described under "Executive Officer and Director Compensation."

Merger with Michigan Life Therapeutics, LLC

In November 2014, pursuant to the Plan and Agreement of Merger with MLT, Dr. Bisgaier, our Chief Scientific Officer, chairman of our board of directors and co-founder, and Mr. Lowenschuss, our Chief Legal Officer, Secretary and co-founder, who were the only two members of MLT, received 1,192,690 and 795,127 shares of our common stock, respectively, of which 238,538 shares and 318,051 shares, respectively, are subject to vesting schedules pursuant to the employee agreements with such officers. Dr. Bisgaier and Mr. Lowenschuss are also both beneficial owners of more than 5% of our capital stock.

Lease with Michigan Life Ventures, LLC

On January 1, 2015, we entered into an office space sublease agreement with MLV. Pursuant to the lease, as amended, we currently lease an approximately 1,450 square foot facility in Northville, Michigan for a fixed rental fee of $2,500 per month, plus monthly cleaning fees. The current lease expires on December 31, 2016. Dr. Bisgaier, our Chief Scientific Officer, Chairman of our board of directors and co-founder, and Mr. Lowenschuss, our Chief Legal Officer, Secretary and co-founder, are members of MLV. Dr. Bisgaier and Mr. Lowenschuss are also both beneficial owners of more than 5% of our capital stock.

Pfizer Inc. License Agreement

In April 2011, we entered into the Pfizer Agreement for a worldwide exclusive license to certain patent rights to make, use, sell, offer for sale and import the clinical product candidate gemcabene. In exchange for this license, we agreed to issue shares of our common stock to Pfizer representing 15% of our fully diluted capital at the close of our first arms-length Series A financing.

We agreed to make milestone payments totaling up to $37 million upon the achievement of certain milestones, including the first regulatory submission 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 or any product containing 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.

We have 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 expiration of the last valid claim of the licensed patent rights, including any patent term extensions or supplemental protection certificates. The royalty rates range from the high single digits to the low teens depending on the level of net sales. Under the Pfizer Agreement we are obligated to use commercially reasonable efforts to develop and commercialize gemcabene.

In March 2015, upon the closing of our Series A preferred stock financing, we issued 675,250 shares of our common stock to Pfizer in connection with the first equity payment, pursuant to which Pfizer became the owner of more than 5% of our capital stock.

The Pfizer Agreement will expire upon expiration of the last royalty term. Either party may terminate the Pfizer Agreement for the other party's uncured material breach and specified bankruptcy events. Pfizer may terminate the Pfizer Agreement if we or any of our sublicensees challenge the validity, enforceability or ownership of the licensed patents. Additionally, Pfizer may revoke the license if we are unable to adequately commercialize gemcabene by April 2021.

Promissory Notes, Convertible Note Financings and Preferred Stock

From March 2009 to October 2014, we borrowed an aggregate of $318,200 from, and issued promissory notes to, Dr. Bisgaier and our former Chief Operating Officer, Ms. McShane. These promissory notes were refinanced in connection with the convertible note financing discussed below.

On November 1, 2014, we entered into a convertible note financing pursuant to which we issued 8% convertible notes in an aggregate principal amount of $2.7 million to various investors from November 1, 2014 to February 18, 2015. On March 31, 2015, we also entered into a stock purchase agreement pursuant to which we agreed to issue and sell to various investors shares of our Series A convertible preferred stock at a per share price of $6.70585 (which was adjusted from $2.15 in connection with the 1-for-3.119 reverse split of our stock, which became effective April 27, 2016). In connection with the stock purchase agreement, 125% of the unpaid principal plus any unpaid accrued interest on the notes was converted into shares of our Series A convertible preferred stock. Each share of Series A convertible preferred stock will convert into one share of our common stock upon the closing of this offering.

The following table summarizes the principal amount of convertible notes and shares of Series A convertible preferred stock purchased or received upon conversion by members of our board of directors, executive officers or related parties.

Name of Noteholder	Principal Amount of Convertible Note ($)	Shares of Series A Convertible Preferred Stock Received Upon Conversion (#)	Value of Shares of Series A Convertible Preferred Stock Received Upon Conversion of Principal and Interest ($)	Additional Series A Convertible Preferred Stock Investment (#)	Additional Series A Convertible Preferred Stock Investment ($)
The Charles L. Bisgaier Trust Dated November 8, 2000[1]	311,517	59,561	399,406	—	—
The Margaret M. McShane Revocable Trust[2]	47,532	9,088	60,942	—	—
Arvinder S. Sooch Trust Dated September 2006[3]	40,000	7,567	50,743	3,511	23,544
Edward Lowenschuss[4]	25,000	4,708	31,574	18,641	125,000
Michelle Johnson[5]	25,000	4,693	31,467	—	—
P. Kent Hawryluk Revocable Trust[6]	—	—	—	7,457	50,000
Andrew Sassine[7]	400,000	75,080	503,473	—	—
BWA Gemphire Investment Group, LLC[8]	—	—	—	95,439	640,000
Western Michigan University Research Foundation acting on behalf of Biosciences Research and Commercialization Center[9]	250,000	46,997	315,150	—	—

(1) Dr. Bisgaier, our Chief Scientific Officer and Chairman of our board of directors and a beneficial owner of more than 5% of our capital stock, is the trustee of The Charles L. Bisgaier Trust Dated November 8, 2000.

(2) Ms. McShane, our former Chief Operating Officer is the trustee of The Margaret M. McShane Revocable Trust.

(3) The spouse of Ms. Sooch, our Chief Executive Officer and a member of our board of directors and a beneficial owner of more than 5% of our capital stock, is the trustee of the Arvinder S. Sooch Trust Dated September 2006.

(4) Edward Lowenschuss is the brother of Mr. Lowenschuss, our Chief Legal Officer and Secretary and a beneficial owner of more than 5% of our capital stock.

(5) Michelle Johnson is the sister-in-law of Dr. Bisgaier, our Chief Scientific Officer and Chairman of our board of directors and a beneficial owner of more than 5% of our capital stock.

(6) Mr. Hawryluk is a member of our board of directors.

(7) Mr. Sassine is a member of our board of directors.

(8) Kenneth Kousky, a member of our board of directors, is the manager of BWA Gemphire Investment Group, LLC.

(9) Stephen Haakenson, a former member of our board of directors, is an Executive Director of Biosciences Research & Commercialization Center.

On July 31, 2015, December 11, 2015, February 25, 2016 and April 14, 2016, we entered into convertible note financings in which we issued 8% convertible notes in an aggregate principal amount of $10.6 million to various investors. Under the terms of the convertible notes, upon the closing of a convertible preferred stock financing of at least $5 million, 125% of the outstanding principal and accrued interest under such notes shall convert into shares of the same series of stock issued in such financing at a conversion price equal to the per share price of the stock issued in such financing. In the event that we approve a change of control transaction or firmly underwritten public offering of our common stock prior to the consummation of such a stock financing, the outstanding principal, plus accrued interest, under such notes shall automatically convert into shares of our common stock at a conversion price of $6.70585 per share (which was adjusted from $2.15 in connection with the 1-for-3.119 reverse split of our stock, which became effective on April 27, 2016) immediately prior to the closing of such transaction. In the event that a stock financing, change of control or initial public offering has not occurred, the convertible notes will become payable on demand anytime after December 31, 2016.

The following table summarizes the principal amount of convertible notes purchased by members of our board of directors, executive officers or related parties.

Name of Noteholder	Principal Amount of Convertible Note($)
The Charles L. Bisgaier Trust Dated November 8, 2000(1)	100,000
The Margaret M. McShane Revocable Trust(2)	20,000
Arvinder S. Sooch Trust Dated September 2006(3)	175,000
Edward Lowenschuss(4)	150,000
Michelle Johnson(5)	50,000
P. Kent Hawryluk Revocable Trust(6)	150,000
Andrew Sassine(7)	200,000
Western Michigan University Research Foundation acting on behalf of Biosciences Research and Commercialization Center(8)	100,000
The Beverly Selnick Revocable Living Trust(9)	75,000
Bisgaier Family, LLC(10)	125,000
Jeffrey S. Mathiesen(11)	25,000
BWA Gemphire Investment Group II, LLC(12)	746,500
Pedro Lichtinger(13)	250,000
Dena Marie Bisgaier(14)	25,000
Stanley Bisgaier(15)	25,000
Excel Venture Fund II, L.P.(16)	2,000,000

(1) Dr. Bisgaier, our Chief Scientific Officer, Chairman of our board of directors and a beneficial owner of more than 5% of our capital stock, is the trustee of The Charles L. Bisgaier Trust Dated November 8, 2000.

(2) Ms. McShane, our former Chief Operating Officer is the trustee of The Margaret M. McShane Revocable Trust.

(3) The spouse of Ms. Sooch, our Chief Executive Officer, a member of our board of directors and a beneficial owner of more than 5% of our capital stock, is the trustee of the Arvinder S. Sooch Trust Dated September 2006.

(4) Edward Lowenschuss is the brother of Mr. Lowenschuss, our Chief Legal Officer and Secretary and a beneficial owner of more than 5% of our capital stock.

(5) Michelle Johnson is the sister-in-law of Dr. Bisgaier, our Chief Scientific Officer, Chairman of our board of directors and a beneficial owner of more than 5% of our capital stock.

(6) Mr. Hawryluk is a member of our board of directors.

(7) Mr. Sassine is a member of our board of directors.

(8) Stephen Haakenson, a former member of our board of directors, is an Executive Director of Biosciences Research & Commercialization Center.

(9) Ms. Selnick, the mother of Mr. Lowenschuss, our Chief Legal Officer and Secretary and a beneficial owner of more than 5% of our capital stock, is the trustee of The Beverly Selnick Revocable Living Trust.

(10) Dr. Bisgaier, our Chief Scientific Officer, Chairman of our board of directors and a beneficial owner of more than 5% of our capital stock, is the manager of the Bisgaier Family, LLC.

(11) Mr. Mathiesen, our Chief Financial Officer, holds these notes jointly with his spouse.

(12) Kenneth Kousky, a member of our board of directors, is the manager of BWA Gemphire Investment Group II, LLC.

(13) Mr. Lichtinger is a member of our board of directors.

(14) Ms. Bisgaier is the daughter of Dr. Bisgaier, our Chief Scientific Officer, Chairman of our board of directors and a beneficial owner of more than 5% of our capital stock.

(15) Mr. Bisgaier is the son of Dr. Bisgaier, our Chief Scientific Officer, Chairman of our board of directors and a beneficial owner of more than 5% of our capital stock.

(16) Dr. Gullans, a member of our board of directors, is the Manager of Excel Venture Fund II, L.P.

Investor Agreements

On November 1, 2014, we entered into a shareholders agreement with the Charles L. Bisgaier Trust dated November 8, 2000, as amended, of which Dr. Bisgaier is the Trustee, Mr. Lowenschuss, Ms. McShane, Dr. Oniciu and Ms. Sooch. The agreement contains rights of first offer, drag-along rights and tag-along rights. These rights will terminate upon the closing of this offering.

On November 1, 2014, we entered into a voting agreement with the Charles L. Bisgaier Trust dated November 8, 2000, as amended, of which Dr. Bisgaier is the Trustee, Mr. Lowenschuss, Ms. McShane, Dr. Oniciu and Ms. Sooch (collectively, the "Voting Agreement Shareholders"). The agreement obligates the Voting Agreement Shareholders to vote all of their shares of capital stock so as to elect three members of the Board as designated by the Voting Agreement Shareholders. These rights will terminate upon the closing of this offering.

In connection with our Series A convertible preferred stock financing, we 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 our Series A convertible preferred stock. On April 14, 2016, we amended the investor rights agreement to provide registration rights to certain holders of our convertible notes. As detailed above, certain members of our board of directors, executive officers and related parties are holders of our Series A convertible preferred stock. These rights will terminate upon the closing of this offering, except for the registration rights as more fully described below in "Description of Capital Stock — Registration Rights."

Indemnification Agreements

We have entered, and intend to continue to enter, into separate indemnification agreements with our directors and executive officers, in addition to the indemnification provided for in our amended and restated certificate of incorporation and amended and restated bylaws, which will become effective immediately prior to the closing of this offering. For more information regarding these indemnification arrangements, see "Management — Limitation on Liability and Indemnification of Directors and Officers." We believe that these provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers.

Potential Insider Participation in this Offering

Certain of our existing security holders and their affiliated entities, including stockholders affiliated with our directors, have indicated an interest in purchasing an aggregate of up to $10 million of shares of our common stock in this offering at the initial public offering price. Based on an assumed initial public offering price of $12.00 per share, the mid-point of the estimated price range set forth on the cover page of this prospectus, these parties would purchase up to an aggregate of 833,333 of the 3,750,000 shares in this offering based on these indications of interest. However, because indications of interest are not binding agreements or commitments to purchase, the underwriters may determine to sell more, fewer or no shares in this offering to any of these parties, or any of these parties may determine to purchase more, fewer or no shares in this offering. The underwriters will receive the same underwriting discount on any shares purchased by these entities as they will on any other shares sold to the public in this offering.

Directed Share Program

At our request, the underwriters have reserved up to 10% of the shares of our common stock offered by this prospectus for sale, at the initial public offering price, to our directors, officers, employees and other individuals associated with us and members of their respective families.

The directed share program will not limit the ability of such persons to purchase more than $120,000 in value of our common stock. We do not currently know the extent to which these related persons will participate in the directed share program, if at all.

Policies and Procedures for Transactions with Related Parties

The charter of our audit committee provides that it is the responsibility of our audit committee to review, approve and oversee any transaction between us and any related person and any other potential conflict of interest situations on an ongoing basis, in accordance with our policies and procedures, and to develop policies and procedures for the approval of related party transactions. Related party transactions also may be reviewed and approved at the full board level. Prior to consideration of a transaction with a related person, the material facts as to the related person's relationship or interest in the transaction are disclosed to our audit committee or the disinterested directors. The transaction is not approved unless a majority of the members of the committee or the full board who are not interested in the transaction approve the transaction. The audit committee takes into account, among other factors that it deems appropriate, whether the related person transaction is on terms no less favorable to us than terms generally available in a transaction with an unrelated third-party under the same or similar circumstances and the extent of the related person's interest in the related person transaction. Our current policy with respect to approval of related person transactions is not set forth in writing. We expect to adopt a written related person transaction policy to be effective upon the closing of this offering.

PRINCIPAL STOCKHOLDERS

The following table sets forth information regarding beneficial ownership of our capital stock by:

- each person, or group of affiliated persons, known by us to beneficially own more than 5% of our common stock;
- each of our named executive officers;
- each of our directors; and
- all of our current executive officers and directors as a group.

Beneficial ownership prior to this offering is based on 6,191,393 shares of common stock outstanding as of May 2, 2016, and assumes (i) the automatic conversion of all outstanding shares of our preferred stock into 745,637 shares of common stock, (ii) the automatic conversion of the principal and accrued and unpaid interest outstanding as of May 2, 2016 on our convertible notes into 1,622,043 shares of common stock and (iii) the issuance of 65,225 shares of common stock pursuant to the Accrued Dividends described elsewhere in this prospectus in the section titled "Dividend Policy" immediately prior to the closing of the offering (assuming the closing of the offering occurred on May 2, 2016).

The percentage of shares beneficially owned after this offering is based on 9,941,393 shares of common stock, after taking into account the assumptions described above and the issuance of 3,750,000 shares of common stock in this offering assuming no exercise of the underwriters' option to purchase additional shares. We have assumed that no shares of our common stock are purchased by our directors or executive officers or by the beneficial owners of more than 5% of our capital stock pursuant to the directed share program or otherwise in the offering. The table below excludes the 1,825,200 shares issuable upon exercise of options to be granted to certain officers, directors, employees and consultants in connection with this offering.

Certain of our existing security holders and their affiliated entities, including stockholders affiliated with our directors, have indicated an interest in purchasing an aggregate of up to $10 million of shares of our common stock in this offering at the initial public offering price. Based on an assumed initial public offering price of $12.00 per share, the mid-point of the estimated price range set forth on the cover page of this prospectus, these security holders would purchase up to an aggregate of 833,333 shares of the 3,750,000 shares in this offering based on these indications of interest. However, because indications of interest are not binding agreements or commitments to purchase, the underwriters may determine to sell more, fewer or no shares in this offering to any of these parties, or any of these parties may determine to purchase more, fewer or no shares in this offering. The following table does not reflect any potential purchases by these parties.

Information with respect to beneficial ownership has been furnished by each director, officer or beneficial owner of more than 5% of our common stock. We 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. In addition, the rules include shares of our common stock issuable pursuant to the exercise of stock options that are either immediately exercisable or exercisable within 60 days of May 2, 2016. These shares are deemed to be outstanding and beneficially owned by the person holding those options 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 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.

Except as otherwise noted below, the address for each person or entity listed in the table is c/o Gemphire Therapeutics Inc., 43334 Seven Mile Road, Suite 1000, Northville, Michigan 48167.

NAME AND ADDRESS OF BENEFICIAL OWNER	NUMBER OF SHARES BENEFICIALLY OWNED	PERCENTAGE OF SHARES BENEFICIALLY OWNED	
		BEFORE OFFERING	AFTER OFFERING
Greater than 5% stockholders			
Pfizer Inc.(1)	675,250	10.9%	6.8%
David Lowenschuss(2)	797,454	12.9	8.0
Directors and Named Executive Officers			
Mina Sooch(3)	685,066	11.1	6.9
Charles L. Bisgaier, Ph.D.(4)	1,296,568	20.9	13.0
Jeffrey S. Mathiesen(5)	20,411	*	*
Steve Gullans, Ph.D.(6)	299,485	4.8	3.0
P. Kent Hawryluk(7)	63,295	1.0	*
Kenneth Kousky(8)	226,244	3.6	2.3
Pedro Lichtinger(9)	47,806	*	*
Andy Sassine(10)	130,209	2.1	1.3
All current executive officers and directors as a group (11 persons)(11)	3,736,792	59.6%	37.3%

* Represents beneficial ownership of less than one percent.

(1) Represents 675,250 shares of common stock beneficially owned by Pfizer Inc. The address for Pfizer Inc. is 235 East 42nd St., New York, New York 10017.

(2) Represents (a) 795,127 shares of common stock held by Mr. Lowenschuss, which become fully vested upon the closing of this offering, and (b) 2,327 shares underlying options to purchase common stock that are exercisable within 60 days of May 2, 2016.

(3) Represents (a) 641,232 shares of common stock held by Ms. Sooch, which become fully vested upon the closing of this offering, (b) 5,220 shares underlying options to purchase common stock that are exercisable within 60 days of May 2, 2016, (c) 37,645 shares of common stock issuable upon conversion of Series A convertible preferred stock and convertible notes held by Arvinder S. Sooch Trust dated September 20, 2006, of which Ms. Sooch's spouse is the trustee and (d) 969 shares of common stock issuable to the Arvinder S. Sooch Trust dated September 20, 2006 pursuant to Accrued Dividends.

(4) Represents (a) 1,192,690 shares of common stock held by Dr. Bisgaier, which become fully vested upon the closing of this offering, (b) 4,474 shares underlying options to purchase common stock that are exercisable within 60 days of May 2, 2016, (c) 94,195 shares of common stock issuable upon conversion of Series A convertible preferred stock and convertible notes held by The Charles L. Bisgaier Trust dated November 8, 2000, of which Dr. Bisgaier is the trustee, and Bisgaier Family, LLC and (d) 5,209 shares of common stock issuable to The Charles L. Bisgaier Trust dated November 8, 2000 and Bisgaier Family, LLC pursuant to Accrued Dividends.

(5) Represents (a) 16,566 shares underlying options to purchase common stock that are exercisable within 60 days of May 2, 2016 and (b) 3,845 shares of common stock issuable upon conversion of convertible notes.

(6) Represents 299,485 shares of common stock issuable upon conversion of convertible notes held by Excel Venture Fund II, L.P., of which Dr. Gullans is the Manager. Dr. Gullans may be deemed to have voting and investment power over the shares owned by Excel Venture Fund II, L.P.

(7) Represents (a) 32,062 shares of common stock held by P. Kent Hawryluk, subject to vesting as described under "Executive Officer and Director Compensation—Non-Employee Director Compensation," (b) 30,580 shares of common stock issuable upon conversion of Series A convertible preferred stock and convertible notes held by the P. Kent Hawryluk Revocable Trust,

of which Mr. Hawryluk is the trustee and (c) 653 shares of common stock issuable to the P. Kent Hawryluk Revocable Trust pursuant to Accrued Dividends.

(8) Represents (a) 8,016 shares underlying options to purchase common stock exercisable within 60 days of May 2, 2016, (b) 209,881 shares of common stock issuable upon conversion of Series A convertible preferred stock and convertible notes held by BWA Gemphire Investment Group, LLC or BWA Gemphire Investment Group II, LLC, of which Mr. Kousky is a Manager and (c) 8,347 shares of common stock issuable to BWA Gemphire Investment Group, LLC pursuant to Accrued Dividends. Mr. Kousky may be deemed to have voting and investment power over the shares owned by BWA Gemphire Investment Group, LLC.

(9) Represents 9,352 shares underlying options to purchase common stock that are exercisable within 60 days of May 2, 2016 and (b) 38,454 shares of common stock issuable upon conversion of convertible notes.

(10) Represents (a) 17,367 shares underlying options to purchase common stock that are exercisable within 60 days of May 2, 2016, (b) 106,276 shares of common stock issuable upon conversion of Series A convertible preferred stock and convertible notes held by Mr. Sassine and (c) 6,566 shares of common stock issuable pursuant to Accrued Dividends.

(11) Includes (a) the shares referenced in footnotes (2) - (10) above as well as (b) an additional 149,919 shares of common stock, which will be fully vested upon the closing of this offering, 17,902 shares underlying options to purchase common stock that are exercisable within 60 days of May 2, 2016, 2,237 shares of common stock issuable upon conversion of Series A convertible preferred stock and 196 shares of common stock issued pursuant to Accrued Dividends.

DESCRIPTION OF CAPITAL STOCK

The following is a summary of the rights of our common and preferred stock and some of the provisions of our amended and restated certificate of incorporation and amended and restated bylaws that will become effective upon the closing of this offering, and of the Delaware General Corporation Law. This summary is not complete. For more detailed information, please see our amended and restated certificate of incorporation and amended and restated bylaws, which are filed as exhibits to the registration statement of which this prospectus is a part, as well as the relevant provisions of the Delaware General Corporation Law.

General

Upon the closing of this offering and the filing of our amended and restated certificate of incorporation, our authorized capital stock will consist of 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. All of our authorized preferred stock upon the closing of this offering will be undesignated.

Common Stock

Outstanding Shares

As of May 2, 2016, there were 3,758,488 shares of common stock outstanding, held of record by 15 stockholders. Based on such number of shares of common stock outstanding as of May 2, 2016, and assuming (1) the conversion of all of our convertible preferred stock outstanding as of May 2, 2016 into 745,637 shares of common stock immediately prior to the closing of this offering, (2) the conversion of the principal and accrued and unpaid interest outstanding as of May 2, 2016 on our convertible notes into 1,622,043 shares of common stock immediately prior to the closing of this offering, (3) the issuance of 65,225 shares of common stock pursuant to the Accrued Dividends described elsewhere in this prospectus in the section titled "Dividend Policy" immediately prior to the closing of the offering (assuming the closing of the offering occurred on May 2, 2016) and (4) the issuance by us of 3,750,000 shares of common stock in this offering, there will be 9,941,393 shares of common stock outstanding upon closing of this offering.

As of May 2, 2016, 302,842 shares of common stock were issuable upon the exercise of stock options outstanding as of May 2, 2016 at a weighted-average exercise price of $2.428 per share that were issued under our 2015 Plan. Our Compensation Committee has approved the award of stock options to purchase an aggregate of 1,825,200 shares of common stock with a per share exercise price equal to the initial public offering price, in each case pursuant to the 2015 Plan, to be granted to certain officers, directors, employees and consultants in connection with this offering.

Voting

Our common stock is entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, including the election of directors, and does not have cumulative voting rights. Accordingly, the holders of a plurality of the shares of our common stock present at the meeting and entitled to vote in any election of directors can elect all of the directors standing for election. For most other matters, the approval of a majority of the shares voting at an annual or special meeting of stockholders will be required. Exceptions to this include removing directors for cause and amending certain sections of our amended and restated certificate of incorporation and amended and restated bylaws, which will be effective upon the closing of this offering, each of which will require the approval of the holders of at least $66^{2}/_{3}\%$ of the voting power of all of our then outstanding capital stock.

Dividends

Subject to preferences that may be applicable to any then outstanding preferred stock, the holders of common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds.

Liquidation

In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the satisfaction of any liquidation preference granted to the holders of any outstanding shares of preferred stock.

Rights and Preferences

Holders of our common stock have no preemptive, conversion or subscription rights, and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of our preferred stock that we may designate and issue in the future.

Fully Paid and Nonassessable

All of our outstanding shares of common stock are, and the shares of common stock to be issued in this offering will be, fully paid and nonassessable.

Convertible Preferred Stock

As of May 2, 2016, we had outstanding an aggregate of 745,637 shares of Series A convertible preferred stock held of record by 40 stockholders.

Immediately prior to the closing of this offering, all outstanding shares of preferred stock at May 2, 2016 will convert into 745,637 shares of our common stock and we expect to issue 65,225 shares of common stock pursuant to the Accrued Dividends described elsewhere in this prospectus in the section titled "Dividend Policy" (assuming the closing of the offering occurred on May 2, 2016).

Under the amended and restated certificate of incorporation, our board of directors will have the authority, without further action by the stockholders, to 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, to fix the rights, preferences and privileges of the shares of each wholly unissued series and any qualifications, limitations or restrictions thereon 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.

Our board of directors 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 the 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, deferring or preventing a change in our control that may otherwise benefit holders of our common stock and may adversely affect the market price of the common stock and the voting and other rights of the holders of common stock. We have no current plans to issue any shares of preferred stock.

Stock Options

As of May 2, 2016, 302,842 shares of common stock were issuable upon the exercise of outstanding stock options, at a weighted-average exercise price of $2.428 per share. On April 25 and 27, 2016, our Compensation Committee approved the award of stock options to purchase an aggregate of 1,825,200 shares of common stock with a per share exercise price equal to the initial public offering price, in each case pursuant to the 2015 Plan, to be granted to certain officers, directors, employees and consultants in connection with this offering.

Convertible Notes

Under the terms of our outstanding convertible notes, upon the closing of a convertible preferred stock financing of at least $5 million, 125% of the outstanding principal, plus accrued interest, under such notes shall convert into shares of the same series of stock issued in such financing at a conversion price equal to

the per share price of the stock issued in such financing. In the event that we approve a change of control transaction or firmly underwritten public offering of our common stock prior to the consummation of such a stock financing, the outstanding principal, plus accrued interest, under such notes shall automatically convert into shares of our common stock at a conversion price of $6.70585 per share (which was adjusted from $2.15 in connection with the 1-for-3.119 reverse split of our stock, which became effective on April 27, 2016). Convertible notes with a principal balance, plus accrued interest, totaling $10.9 million were outstanding as of May 2, 2016. As of May 2, 2016, 1,622,043 shares of common stock would have been issuable upon the conversion of the outstanding convertible notes, if such notes had converted on such date.

Registration Rights

Following the closing of this offering, certain holders of our common stock, or their transferees, will be 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 us and certain of our stockholders and convertible noteholders.

Demand Registration Rights

At any time beginning six months after the public offering date set forth on the cover page of this prospectus, upon the written request of certain of the holders of the registrable securities then outstanding that we 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, we will be obligated to notify all holders of registrable securities of such request and to use our reasonable best efforts to register the sale of all registrable securities that holders may request to be registered. We are not required to effect more than two registration statements which are declared or ordered effective. We may postpone the filing or effectiveness of a registration statement for up to 90 days once in any twelve month period if our board of directors determines in its good faith judgment that such registration and offering would materially and adversely affect us. With certain exceptions, we are not required to effect the filing of a registration statement during the period starting with the date of the filing of, and ending on a date 180 days following the effective date of the registration statement for this offering. Upon the closing of this offering, the holders of 2,124,880 shares will be entitled to these demand registration rights.

"Piggyback" Registration Rights

If we register any securities for public sale, holders of registration rights 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, except this offering, in which the holders may be entirely excluded. Upon the closing of this offering, the holders of 2,124,880 shares will be entitled to these piggyback registration rights.

Form S-3 Registration Rights

If we are eligible to file a registration statement on Form S-3, holders of at least 20% of the outstanding registrable securities will have the right to demand that we 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. We are 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, we will be required to use our reasonable best efforts to file the registration as soon as practicable. Upon the closing of this offering, the holders of 2,124,880 shares will be entitled to these Form S-3 registration rights.

Expenses of Registration

Generally, we are required to bear all registration and selling 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 as to a given holder of registrable securities upon the earlier of (i) five years following the closing of this offering or (ii) after the consummation of a liquidation event.

Anti-Takeover Provisions

Delaware Anti-Takeover Law

We are subject to Section 203 of the Delaware General Corporation Law, or Section 203. Section 203 generally prohibits a public Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or 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 upon consummation of the transaction, excluding for purposes of determining the number of shares outstanding (a) shares owned by persons who are directors and also officers and (b) shares owned by 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
- on or subsequent to the consummation of the transaction, the business combination is approved by the board of directors 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, transfer, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;
- subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder;
- 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; and
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits 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 affiliated with or controlling or controlled by the entity or person.

Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws

Provisions of our amended and restated certificate of incorporation and amended and restated bylaws, which will become effective upon the closing of this offering, may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our amended and restated certificate of incorporation and amended and restated bylaws:

- permit our board of directors to issue up to 10,000,000 shares of preferred stock, with any rights, preferences and privileges as they may designate;
- provide that the authorized number of directors may be changed only by resolution adopted by a majority of the board of directors;
- provide that the board of directors or any individual director may only be removed with cause and the affirmative vote of the holders of at least $66^{2}/_{3}\%$ of the voting power of all of our then outstanding capital stock;
- provide that all vacancies, including newly created directorships, may, except as otherwise required by law or subject to the rights of holders of preferred stock as designated from time to time, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- divide our board of directors into three classes;
- require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and not be taken by written consent or electronic transmission;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide notice in writing in a timely manner and also specify requirements as to the form and content of a stockholder's notice;
- do not provide for cumulative voting rights, which means that holders of a majority of the shares of common stock entitled to vote in any election of directors can elect all of the directors standing for election;
- provide that special meetings of our stockholders may only be called by the chairman of the board of directors, our Chief Executive Officer or by the board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors (whether or not any vacancies exist); and
- provide that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors or officers to us or our stockholders, (iii) any action asserting a claim against us arising pursuant to any provision of the DGCL, or (iv) any action asserting a claim against us governed by the internal affairs doctrine.

The amendment of any of these provisions, with the exception of the ability of our board of directors to issue shares of preferred stock and designate any rights, preferences and privileges thereto, would require the affirmative vote of the holders of at least $66^{2}/_{3}\%$ of the voting power of all of our then outstanding capital stock.

NASDAQ Global Market Listing

We have applied to list our common stock on the NASDAQ Global Market under the symbol "GEMP."

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare, Inc. The transfer agent and registrar's address is 250 Royal Street, Canton, Massachussets 02021 and the telephone number is 781-575-2000.

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our common stock. Future sales of substantial amounts of common stock in the public market, or the possibility of these sales occurring, could adversely affect prevailing market prices. Furthermore, since only a limited number of shares will be available for sale shortly after this offering because of contractual and legal restrictions on resale described below, sales of substantial amounts of common stock in the public market after the restrictions lapse could adversely affect the prevailing market price for our common stock as well as our ability to raise equity capital in the future.

Based on the number of shares of common stock outstanding as of May 2, 2016, upon the closing of this offering, 9,941,393 shares of common stock will be outstanding, or 10,503,893 shares if the underwriters exercise the option to purchase additional shares in full. All of the shares sold in this offering will be freely tradable unless purchased by our "affiliates" as that term is defined in Rule 144 under the Securities Act or purchased by existing stockholders and their affiliated entities or pursuant to the directed share program and therefore are subject to lock-up agreements described below and under "Underwriting" included elsewhere in this prospectus. The remaining 6,191,393 shares of common stock outstanding after this offering will be restricted as a result of securities laws or lock-up agreements. These remaining shares will generally become available for sale in the public market as follows:

- No restricted shares will be eligible for immediate sale upon the closing of this offering; and
- Up to 6,191,393 restricted shares will be eligible for sale under Rule 144 or Rule 701, subject to the volume limitations and manner of sale and notice provisions described below under "Rule 144," upon expiration of lock-up agreements at least 180 days after the date of this offering.

Certain of our existing security holders and their affiliated entities, including stockholders affiliated with our directors, have indicated an interest in purchasing an aggregate of up to $10 million of shares of our common stock in this offering at the initial public offering price. Any such shares purchased by these stockholders who are considered to be our affiliates could not be resold in the public market immediately following this offering as a result of restrictions under securities laws, but would be able to be sold following the expiration of these restrictions, as described below. However, because indications of interest are not binding agreements or commitments to purchase, the underwriters may determine to sell more, fewer or no shares in this offering to any of these parties, or any of these parties may determine to purchase more, fewer or no shares in this offering.

Rule 144

In general, under Rule 144 as currently in effect, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, any person who is not an affiliate of ours and has held their shares for at least six months, including any period of consecutive ownership of preceding non-affiliated holders, may sell shares without restriction, provided current public information about us is available. In addition, under Rule 144, any person who is not an affiliate of ours and has held their shares for at least one year, including any period of consecutive ownership of preceding non-affiliated holders, would be entitled to sell an unlimited number of shares immediately upon the closing of this offering without regard to whether current public information about us is available.

Beginning 90 days after the effective date of the registration statement of which this prospectus is a part, a person who is an affiliate of ours and who has beneficially owned restricted securities for at least six months, including any period of consecutive ownership of preceding non-affiliated holders, is entitled to sell a number of restricted shares within any three-month period that does not exceed the greater of:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately 99,414 shares immediately after this offering assuming no exercise of the underwriters' option to purchase additional shares; or

- the average weekly trading volume of our common stock on the NASDAQ Global Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

Sales of restricted shares under Rule 144 by our affiliates are also subject to requirements regarding the manner of sale, notice and the availability of current public information about us. Rule 144 also provides that affiliates relying on Rule 144 to sell unrestricted shares of our common stock must nonetheless comply with the same restrictions applicable to restricted shares, other than the holding period requirement.

Notwithstanding the availability of Rule 144, the holders of substantially all of our restricted shares have entered into lock-up agreements as described below and their restricted shares will become eligible for sale at the expiration of the restrictions set forth in those agreements.

Rule 701

Rule 701 under the Securities Act, as in effect on the effective date of the registration statement of which this prospectus is a part, permits resales of shares in reliance upon Rule 144 but without compliance with certain restrictions of Rule 144, including the holding period requirement. Most of our employees, consultants or advisors who purchased shares from us in connection with a qualified compensatory stock plan or other written agreements are entitled to rely on the resale provisions of Rule 701, but all holders of Rule 701 shares are required to wait until 90 days after the effective date of the registration statement of which this prospectus is a part before selling their shares. However, substantially all Rule 701 shares are subject to lock-up agreements as described below and under "Underwriting" included elsewhere in this prospectus and will become eligible for sale upon the expiration of the restrictions set forth in those agreements.

Lock-Up Agreements

All of our directors and executive officers and the holders of all or substantially all our outstanding capital stock and other securities have signed a lock-up agreement in favor of the underwriters which prevents them from selling our common stock or any securities convertible into or exercisable or exchangeable for common stock for a period of 180 days from the date of the registration statement of which this prospectus is a part without the prior written consent of the representatives subject to certain exceptions set forth in "Underwriting". Jefferies LLC may, with the agreement of RBC Capital Markets, LLC, at any time or from time to time release some or all of the shares subject to lock-up agreements prior to the expiration of the 180-day period.

Registration Rights

Upon closing of this offering, the holders of 2,124,880 shares of our common stock will be entitled to rights with respect to the registration of their shares under the Securities Act, subject to the lock-up agreements described under "— Lock-Up Agreements" above. Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act, except for shares purchased by affiliates, immediately upon the effectiveness of the registration statement of which this prospectus is a part. Any sales of securities by these stockholders could have a material adverse effect on the trading price of our common stock. See "Description of Capital Stock — Registration Rights."

Equity Incentive Plans

We intend to file with the SEC a registration statement on Form S-8 under the Securities Act covering the shares of common stock reserved for issuance under the 2015 Plan. The registration statement is expected to be filed and become effective as soon as practicable after the closing of this offering. Accordingly, shares registered under the registration statement will be available for sale in the open market following its effective date, subject to Rule 144 volume limitations and the lock-up agreements described above, if applicable.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES TO NON-U.S. HOLDERS OF OUR COMMON STOCK

This section discusses the material U.S. federal income tax consequences of the acquisition, ownership and disposition of our common stock by a "Non-U.S. Holder". For purposes of this discussion, a "Non-U.S. Holder" is any beneficial owner of common stock that, for U.S. federal income tax purposes, is neither a U.S. person nor an entity treated as a partnership. The term "U.S. person" means:

- an individual who is a citizen or resident of the United States;
- a corporation or other entity treated as a corporation created or organized in or 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 taxation regardless of its source; or
- a trust (i) whose administration is subject to the primary supervision of a court within the United States and which has one or more U.S. persons who have authority to control all substantive decisions of the trust, or (ii) which has a valid election in effect under applicable U.S. Treasury regulations to be treated as a U.S. person.

This discussion does not address entities that are, or are treated as, partnerships for U.S. federal income tax purposes (regardless of their place of organization or formation) and their equity holders, or entities that are disregarded for U.S. federal income tax purposes (regardless of their place of organization or formation). Therefore, these entities and persons are not considered "Non-U.S. Holders" for the purposes of this discussion.

This discussion generally does not address U.S. federal income tax considerations that may be relevant to particular investors because of their specific circumstances, or because they are subject to special rules. Investors subject to special rules not covered in this discussion include:

- financial institutions;
- insurance companies;
- tax-exempt organizations;
- tax-qualified retirement plans;
- broker-dealers and traders in securities, commodities or currencies;
- U.S. expatriates;
- "controlled foreign corporations;"
- "passive foreign investment companies;"
- corporations that accumulate earnings to avoid U.S. federal income tax;
- persons that hold our common stock as part of a "straddle," "conversion transaction," or other risk reduction strategy, holders deemed to sell our common stock under the constructive sale provisions of the Code;
- holders who hold or receive our common stock pursuant to the exercise of employee stock options or otherwise as compensation; and
- holders who are subject to the alternative minimum tax or the Medicare contribution tax.

Such Non-U.S. Holders are urged to consult their own tax advisors to determine the U.S. federal, state, local and other tax consequences that may be relevant to them.

The following discussion describes the material U.S. federal income tax consequences of the acquisition, ownership and disposition of our common stock acquired in this offering by Non-U.S. Holders. This discussion does not provide a complete analysis of all potential tax considerations and does not address any federal gift or estate tax consequences (except to the limited extent set forth below), or state or local or non-U.S. tax consequences.

The discussion below is based upon the provisions of the Code and U.S. Treasury regulations, published administrative pronouncements, rulings and judicial decisions thereunder as of the date hereof. Such authorities may be repealed, revoked or modified, perhaps retroactively, so as to result in U.S. federal income tax consequences different from those discussed below. We have not requested a ruling from the U.S. Internal Revenue Service, or the IRS, with respect to the statements made and the conclusions reached in the following discussion. This discussion assumes that the Non-U.S. Holder holds our common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment).

The following discussion is for general information only and is not tax advice for any Non-U.S. Holders under their particular circumstances. Persons considering the purchase of our common stock pursuant to this offering should consult their own tax advisors concerning the U.S. federal income tax consequences of acquiring, owning and disposing of our common stock in light of their particular situations as well as any consequences arising under the laws of any other taxing jurisdiction, including any state, local and non-U.S. tax consequences and any U.S. federal tax consequences other than income or estate tax consequences.

Distributions on Our Common Stock

As described above in the "Dividend Policy" section of this prospectus, we do not anticipate paying any cash dividends in the foreseeable future. However, if we do make distributions of cash or property on our common stock, such distributions made to a Non-U.S. Holder generally will constitute dividends for U.S. tax purposes to the extent made out of our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. To the extent those dividends exceed our current and accumulated earnings and profits, the dividends will constitute a return of capital and will first reduce a holder's basis, but not below zero, and then will be treated as gain from the sale of stock (described below).

The gross amount of any dividend (out of earnings and profits) paid to a Non-U.S. Holder generally will be subject to withholding tax at a 30% rate, unless the holder is entitled to an exemption from or reduced rate of withholding under an applicable income tax treaty. In order to receive an exemption or a reduced treaty rate, prior to the payment of a dividend, a Non-U.S. Holder must provide us with an IRS Form W-8BEN, Form W-8BEN-E, or other appropriate form, certifying the Non-U.S. Holder's qualification for the exemption or reduced rate.

We generally are not required to withhold tax on dividends paid to a Non-U.S. Holder that are effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, are attributable to a permanent establishment that such holder maintains in the United States) if a properly executed IRS Form W-8ECI, stating that the dividends are so connected, is furnished to us (or, if stock is held through a financial institution or other agent, to such agent). In general, such effectively connected dividends will be subject to U.S. federal income tax, on a net income basis at the regular graduated rates, unless a specific treaty exemption applies. A corporate Non-U.S. Holder receiving effectively connected dividends may also be subject to an additional "branch profits tax," which is imposed, under certain circumstances, at a rate of 30% (or such lower rate as may be specified by an applicable treaty) on the corporate Non-U.S. Holder's effectively connected earnings and profits, subject to certain adjustments.

A Non-U.S. Holder of common stock that is eligible for a reduced rate of withholding tax pursuant to an income tax treaty may obtain a refund of any excess amounts currently withheld, if an appropriate claim for refund is timely filed with the IRS.

Distributions on our common stock will also be subject to the discussion below regarding back-up withholding and foreign accounts.

Gain on Disposition of Our Common Stock

Subject to the discussion below regarding backup withholding and foreign accounts, a Non-U.S. Holder generally will not be subject to U.S. federal income tax with respect to gain realized on a sale or other disposition of our common stock, unless:

- the gain is effectively connected with a trade or business of such holder in the United States (and, if required by an applicable income tax treaty, is attributable to a permanent establishment that such holder maintains in the United States), in which case, the Non-U.S. Holder generally will be required to pay tax on the net gain derived from the sale at regular graduated U.S. federal income tax rates, unless a specific treaty exemption applies, and if the Non-U.S. Holder is a corporation, an additional branch profits tax may apply, at a 30% rate or such lower rate as may be specified by an applicable income tax treaty;

- the Non-U.S. Holder is a nonresident alien individual and is present in the United States for 183 or more days in the taxable year of the disposition and certain other conditions are met, in which case the Non-U.S. Holder will be required to pay a flat 30% tax (or such lower rate as may be specified by an applicable income tax treaty between the United States and such Non-U.S. Holder's country of residence) on the net gain derived from the disposition, which tax may be offset by U.S. source capital losses (even though such Non-U.S. Holder is not considered a resident of the United States); or

- we are or have been a "U.S. real property holding corporation," or a USRPHC, within the meaning of Section 897(c)(2) of the Code at any time within the shorter of the five-year period preceding such disposition or such holder's holding period.

We believe that we are not, and do not anticipate becoming, a USRPHC.

Information Reporting Requirements and Backup Withholding

Generally, we must report annually to the IRS the amount of dividends paid, the name and address of the recipient, and the amount, if any, of tax withheld. A similar report is sent to the holder. Pursuant to tax treaties or other agreements, the IRS may make its report available to tax authorities in the Non-U.S. Holder's country of residence.

A Non-U.S. Holder will be subject to backup withholding for dividends paid to such holder unless such holder certifies under penalty of perjury that it is a Non-U.S. Holder (and the payor does not have actual knowledge or reason to know that such holder is a U.S. person as defined under the Code), or such holder otherwise establishes an exemption.

Information reporting and, depending on the circumstances, backup withholding will apply to the proceeds of a sale of our common stock within the United States or conducted through certain U.S.-related financial intermediaries, unless the beneficial owner certifies under penalty of perjury that it is a Non-U.S. Holder (and the payor does not have actual knowledge or reason to know that the beneficial owner is a U.S. person as defined under the Code), or such owner otherwise establishes an exemption.

Backup withholding is not an additional tax. Rather, the U.S. federal income tax liability of persons subject to backup withholding will be reduced by the amount of tax withheld. If withholding results in an overpayment of taxes, a credit or refund may be obtained from the IRS, so long as the required information is furnished to the IRS in a timely manner. If backup withholding is applied to you, you should consult with your own tax advisor to determine if you are able to obtain a tax refund or credit with respect to the amount withheld.

Foreign Accounts

Sections 1471 through 1474 of the Code (such Sections commonly referred to as FATCA), generally may impose a U.S. federal withholding tax of 30% on dividends paid on our common stock and the gross

proceeds of a disposition of our common stock paid to non-U.S. financial institutions and certain non-U.S. non-financial entities (including, in some instances, where such an institution or entity is acting as an intermediary) unless they satisfy certain reporting requirements.

The withholding provisions described above generally apply to payments of dividends on our common stock and will apply to payments of gross proceeds from a sale or other disposition of our common stock on or after January 1, 2019.

Under certain circumstances, a Non-U.S. Holder might be eligible for refunds or credits of such taxes. Prospective investors are encouraged to consult with their own tax advisors regarding possible implications of FATCA on their investment in our common stock.

U.S. Federal Estate Tax

The estates of nonresident alien individuals are generally subject to U.S. federal estate tax on property with a U.S. situs. Because we are a U.S. corporation, our common stock will be U.S. situs property and therefore will be included in the taxable estate of a nonresident alien decedent. The U.S. federal estate tax liability of the estate of a nonresident alien may be affected by a tax treaty between the United States and the decedent's country of residence.

THE PRECEDING DISCUSSION OF MATERIAL U.S. FEDERAL TAX CONSEQUENCES IS FOR GENERAL INFORMATION ONLY. IT IS NOT TAX ADVICE FOR ANY NON-U.S. HOLDERS UNDER THEIR PARTICULAR CIRCUMSTANCES. EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS OWN TAX ADVISOR REGARDING THE TAX CONSEQUENCES OF ACQUIRING, HOLDING AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAW, AS WELL AS TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL, NON-U.S. OR U.S. FEDERAL TAX LAWS OTHER THAN INCOME TAXES.

UNDERWRITING

Subject to the terms and conditions set forth in the underwriting agreement, dated , 2016, among us and Jefferies LLC and RBC Capital Markets, LLC, as the representatives of the underwriters named below and the joint book-running managers of this offering, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the respective number of shares of common stock shown opposite its name below:

UNDERWRITER	NUMBER OF SHARES
Jefferies LLC	
RBC Capital Markets, LLC	
Canaccord Genuity Inc.	
Roth Capital Partners, LLC	
Total	3,750,000

The underwriting agreement provides that the obligations of the several underwriters are subject to certain conditions precedent such as the receipt by the underwriters of officers' certificates and legal opinions and approval of certain legal matters by their counsel. The underwriting agreement provides that the underwriters will purchase all of the shares of common stock if any of them are purchased. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the nondefaulting underwriters may be increased or the underwriting agreement may be terminated. We have agreed to indemnify the underwriters and certain of their controlling persons against certain liabilities, including liabilities under the Securities Act, and to contribute to payments that the underwriters may be required to make in respect of those liabilities.

At our request, the underwriters have reserved up to 10% of the shares of our common stock offered by this prospectus for sale, at the initial public offering price, to our directors, officers, employees and other individuals associated with us and members of their respective families. We do not know if these persons will choose to purchase all or any portion of these reserved shares, but any purchases they do make will reduce the number of shares available to the general public. The underwriters will receive the same underwriting discount on any shares purchased by these investors as they will on any other shares sold to the public in this offering. Any shares purchased by such investors will be subject to the lock-up restrictions described herein.

The underwriters have advised us that, following the closing of this offering, they currently intend to make a market in the common stock as permitted by applicable laws and regulations. However, the underwriters are not obligated to do so, and the underwriters may discontinue any market-making activities at any time without notice in their sole discretion. Accordingly, no assurance can be given as to the liquidity of the trading market for the common stock, that you will be able to sell any of the common stock held by you at a particular time or that the prices that you receive when you sell will be favorable.

The underwriters are offering the shares of common stock subject to their acceptance of the shares of common stock from us and subject to prior sale. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commission and Expenses

The underwriters have advised us that they propose to offer the shares of common stock to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers, which may

include the underwriters, at that price less a concession not in excess of $ per share of common stock. The underwriters may allow, and certain dealers may reallow, a discount from the concession not in excess of $ per share of common stock to certain brokers and dealers. After the offering, the initial public offering price, concession and reallowance to dealers may be reduced by the representatives. No such reduction will change the amount of proceeds to be received by us as set forth on the cover page of this prospectus.

The following table shows the public offering price, the underwriting discounts and commissions that we are to pay the underwriters and the proceeds, before expenses, to us in connection with this offering. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	PER SHARE		TOTAL	
	WITHOUT OPTION TO PURCHASE ADDITIONAL SHARES	WITH OPTION TO PURCHASE ADDITIONAL SHARES	WITHOUT OPTION TO PURCHASE ADDITIONAL SHARES	WITH OPTION TO PURCHASE ADDITIONAL SHARES
Public offering price	$	$	$	$
Underwriting discounts and commissions paid by us	$	$	$	$
Proceeds to us, before expenses	$	$	$	$

We estimate expenses payable by us in connection with this offering, other than the underwriting discounts and commissions referred to above, will be approximately $2.0 million. We have also agreed to reimburse the underwriters for up to $35,000 for certain FINRA-related expenses. In accordance with FINRA 5110, this reimbursed fee is deemed underwriting compensation for this offering.

Determination of Offering Price

Prior to this offering, there has not been a public market for our common stock. Consequently, the initial public offering price for our common stock will be determined by negotiations between us and the representatives. Among the factors to be considered in these negotiations will be prevailing market conditions, our financial information, market valuations of other companies that we and the underwriters believe to be comparable to us, estimates of our business potential, the present state of our development and other factors deemed relevant.

We offer no assurances that the initial public offering price will correspond to the price at which the common stock will trade in the public market subsequent to the offering or that an active trading market for the common stock will develop and continue after the offering.

Listing

We have applied to have our common stock approved for listing on the NASDAQ Global Market under the symbol "GEMP."

Stamp Taxes

If you purchase shares of common stock offered in this prospectus, you may be required to pay stamp taxes and other charges under the laws and practices of the country of purchase, in addition to the offering price listed on the cover page of this prospectus.

Option to Purchase Additional Shares

We have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase, from time to time, in whole or in part, up to an aggregate of 562,500 shares from us at the public offering price set forth on the cover page of this prospectus, less underwriting discounts and commissions. If the underwriters exercise this option, each underwriter will be obligated, subject to specified conditions, to purchase a number of additional shares proportionate to that underwriter's initial purchase commitment as indicated in the table above. This option may be exercised only if the underwriters sell more shares than the total number set forth on the cover page of this prospectus.

No Sales of Similar Securities

We, our officers, directors and holders of all or substantially all our outstanding capital stock and other securities have agreed, subject to specified exceptions, not to directly or indirectly:

- sell, offer, contract or grant any option to sell (including any short sale), pledge, transfer, establish an open "put equivalent position" within the meaning of Rule 16a-l(h) under the Securities Exchange Act of 1934, as amended,
- otherwise dispose of any shares of common stock, options or warrants to acquire shares of common stock, or securities exchangeable or exercisable for or convertible into shares of common stock currently or hereafter owned either of record or beneficially,
- enter into any swap, hedge or similar arrangement or agreement that transfers, in whole or in part, the economic risk of ownership of shares of our common stock, or of options or warrants to shares of our common stock, or securities or rights exchangeable or exercisable for or convertible into shares of our common stock,
- make any demand for, or exercise any right with respect to, the registration under the Securities Act of the offer and sale of any shares of our common stock, or of options or warrants to shares of our common stock, or securities or rights exchangeable or exercisable for or convertible into shares of our common stock, or cause to be filed a registration statement, prospectus or prospectus supplement (or an amendment or supplement thereto) with respect to any such registration, or
- publicly announce an intention to do any of the foregoing for a period of 180 days after the date of this prospectus without the prior written consent of Jefferies LLC, with the agreement of RBC Capital Markets, LLC.

This restriction terminates after the close of trading of the common stock on and including the 180th day after the date of this prospectus. In addition, the foregoing shall not apply to issuances of common stock or grants of stock options, restricted stock or other incentive compensation pursuant to the terms of certain stock plans or arrangements described herein.

Jefferies LLC may, with the agreement of RBC Capital Markets, LLC, at any time or from time to time before the termination of the 180-day period, release all or any portion of the securities subject to lock-up agreements. There are no existing agreements between the underwriters and any of our stockholders who will execute a lock-up agreement, providing consent to the sale of shares prior to the expiration of the lock-up period.

Stabilization

The underwriters have advised us that they, pursuant to Regulation M under the Securities Exchange Act of 1934, as amended, certain persons participating in the offering may engage in short sale transactions, stabilizing transactions, syndicate covering transactions or the imposition of penalty bids in connection with this offering. These activities may have the effect of stabilizing or maintaining the market price of the common stock at a level above that which might otherwise prevail in the open market. Establishing short sales positions may involve either "covered" short sales or "naked" short sales.

"Covered" short sales are sales made in an amount not greater than the underwriters' option to purchase additional shares of our common stock in this offering. The underwriters may close out any covered short position by either exercising their option to purchase additional shares of our common stock or purchasing shares of our common stock in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option to purchase additional shares.

"Naked" short sales are sales in excess of the option to purchase additional shares of our common stock. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the shares of our common stock in the open market after pricing that could adversely affect investors who purchase in this offering.

A stabilizing bid is a bid for the purchase of shares of common stock on behalf of the underwriters for the purpose of fixing or maintaining the price of the common stock. A syndicate covering transaction is the bid for or the purchase of shares of common stock on behalf of the underwriters to reduce a short position incurred by the underwriters in connection with the offering. Similar to other purchase transactions, the underwriter's purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. A penalty bid is an arrangement permitting the underwriters to reclaim the selling concession otherwise accruing to a syndicate member in connection with the offering if the common stock originally sold by such syndicate member are purchased in a syndicate covering transaction and therefore have not been effectively placed by such syndicate member.

Neither we nor any of the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. The underwriters are not obligated to engage in these activities and, if commenced, any of the activities may be discontinued at any time.

The underwriters may also engage in passive market making transactions in our common stock on the NASDAQ Global Market in accordance with Rule 103 of Regulation M during a period before the commencement of offers or sales of shares of our common stock in this offering and extending through the completion of distribution. A passive market maker must display its bid at a price not in excess of the highest independent bid of that security. However, if all independent bids are lowered below the passive market maker's bid that bid must then be lowered when specified purchase limits are exceeded.

Electronic Distribution

A prospectus in electronic format may be made available by e-mail or on the web sites or through online services maintained by one or more of the underwriters or their affiliates. In those cases, prospective investors may view offering terms online and may be allowed to place orders online. The underwriters may agree with us to allocate a specific number of shares of common stock for sale to online brokerage account holders. Any such allocation for online distributions will be made by the underwriters on the same basis as other allocations. Other than the prospectus in electronic format, the information on the underwriters' web sites and any information contained in any other web site maintained by any of the underwriters is not part of this prospectus, has not been approved and/or endorsed by us or the underwriters and should not be relied upon by investors.

Other Activities and Relationships

The underwriters and certain of their affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory,

investment management, investment research, principal investment, hedging, financing and brokerage activities. The underwriters and certain of their affiliates have, from time to time, performed, and may in the future perform, various commercial and investment banking and financial advisory services for us and our affiliates, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the underwriters and certain of their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve securities and/or instruments issued by us and our affiliates. If the underwriters or their respective affiliates have a lending relationship with us, they routinely hedge their credit exposure to us consistent with their customary risk management policies. The underwriters and their respective affiliates may hedge such exposure by entering into transactions which consist of either the purchase of credit default swaps or the creation of short positions in our securities or the securities of our affiliates, including potentially the common stock offered hereby. Any such short positions could adversely affect future trading prices of the common stock offered hereby. The underwriters and certain of their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Disclaimers About Non-U.S. Jurisdictions

Australia

This prospectus is not a disclosure document for the purposes of Australia's Corporations Act 2001 (Cth) of Australia, or Corporations Act, has not been lodged with the Australian Securities & Investments Commission and is only directed to the categories of exempt persons set out below. Accordingly, if you receive this prospectus in Australia:

You confirm and warrant that you are either:

- a "sophisticated investor" under section 708(8)(a) or (b) of the Corporations Act;
- a "sophisticated investor" under section 708(8)(c) or (d) of the Corporations Act and that you have provided an accountant's certificate to the company which complies with the requirements of section 708(8)(c)(i) or (ii) of the Corporations Act and related regulations before the offer has been made;
- a person associated with the company under Section 708(12) of the Corporations Act; or
- a "professional investor" within the meaning of section 708(11)(a) or (b) of the Corporations Act.

To the extent that you are unable to confirm or warrant that you are an exempt sophisticated investor, associated person or professional investor under the Corporations Act any offer made to you under this prospectus is void and incapable of acceptance.

You warrant and agree that you will not offer any of the shares issued to you pursuant to this prospectus for resale in Australia within 12 months of those shares being issued unless any such resale offer is exempt from the requirement to issue a disclosure document under section 708 of the Corporations Act.

Canada

(A) Resale Restrictions

The distribution of common stock in Canada is being made only in the provinces of Ontario, Quebec, Alberta and British Columbia on a private placement basis exempt from the requirement that we prepare and file a prospectus with the securities regulatory authorities in each province where trades of these securities are made. Any resale of the common stock in Canada must be made under applicable securities laws which may vary depending on the relevant jurisdiction, and which may require resales to be made under available statutory exemptions or under a discretionary exemption granted by the applicable Canadian

securities regulatory authority. Purchasers are advised to seek legal advice prior to any resale of the securities.

(B) Representations of Canadian Purchasers

By purchasing common stock in Canada and accepting delivery of a purchase confirmation, a purchaser is representing to us and the dealer from whom the purchase confirmation is received that:

- the purchaser is entitled under applicable provincial securities laws to purchase the common stock without the benefit of a prospectus qualified under those securities laws as it is an "accredited investor" as defined under National Instrument 45-106 — *Prospectus Exemptions*,
- the purchaser is a "permitted client" as defined in National Instrument 31-103 — *Registration Requirements, Exemptions and Ongoing Registrant Obligations*,
- where required by law, the purchaser is purchasing as principal and not as agent, and
- the purchaser has reviewed the text above under Resale Restrictions.

(C) Conflicts of Interest

Canadian purchasers are hereby notified that the underwriters are relying on the exemption set out in section 3A.3 or 3A.4, if applicable, of National Instrument 33-105 — *Underwriting Conflicts* from having to provide certain conflict of interest disclosure in this document.

(D) Statutory Rights of Action

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if the offering memorandum (including any amendment thereto) such as this document contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser of these securities in Canada should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

(E) Enforcement of Legal Rights

All of our directors and officers as well as the experts named herein may be located outside of Canada and, as a result, it may not be possible for Canadian purchasers to effect service of process within Canada upon us or those persons. All or a substantial portion of our assets and the assets of those persons may be located outside of Canada and, as a result, it may not be possible to satisfy a judgment against us or those persons in Canada or to enforce a judgment obtained in Canadian courts against us or those persons outside of Canada.

(F) Taxation and Eligibility for Investment

Canadian purchasers of common stock should consult their own legal and tax advisors with respect to the tax consequences of an investment in the common stock in their particular circumstances and about the eligibility of the common stock for investment by the purchaser under relevant Canadian legislation.

European Economic Area

In relation to each member state of the European Economic Area which has implemented the Prospectus Directive, each referred to herein as a Relevant Member State, an offer to the public of any common shares which are the subject of the offering contemplated by this prospectus may not be made in that Relevant Member State except that an offer to the public in that Relevant Member State of any common shares may be made at any time under the following exemptions under the Prospectus Directive, if they have been implemented in that Relevant Member State:

(a) to any legal entity which is a "qualified investor" as defined in the Prospectus Directive;

(b) to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to

obtaining the prior consent of the underwriters or the underwriters nominated by us for any such offer; or

(c) in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of securities shall require us or any of the underwriters to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer of securities to the public" in relation to any securities in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the securities to be offered so as to enable an investor to decide to purchase or subscribe the securities, as the same may be varied in that Relevant Member State by any measure implementing the Prospectus Directive in that Relevant Member State and the expression "Prospectus Directive" means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State and the expression "2010 PD Amending Directive" means Directive 2010/73/EU.

Hong Kong

No securities have been offered or sold, and no securities may be offered or sold, in Hong Kong, by means of any document, other than to persons whose ordinary business is to buy or sell shares or debentures, whether as principal or agent; or to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong, or SFO, and any rules made under that Ordinance; or in other circumstances which do not result in the document being a "prospectus" as defined in the Companies Ordinance (Cap. 32) of Hong Kong, or CO, or which do not constitute an offer or invitation to the public for the purpose of the CO or the SFO. No document, invitation or advertisement relating to the securities has been issued or may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted under the securities laws of Hong Kong) other than with respect to securities which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the SFO and any rules made under that Ordinance.

This prospectus has not been registered with the Registrar of Companies in Hong Kong. Accordingly, this prospectus may not be issued, circulated or distributed in Hong Kong, and the securities may not be offered for subscription to members of the public in Hong Kong. Each person acquiring the securities will be required, and is deemed by the acquisition of the securities, to confirm that he is aware of the restriction on offers of the securities described in this prospectus and the relevant offering documents and that he is not acquiring, and has not been offered any securities in circumstances that contravene any such restrictions.

Japan

The offering has not been and will not be registered under the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948 of Japan, as amended), or FIEL, and the underwriters will not offer or sell any securities, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the FIEL and any other applicable laws, regulations and ministerial guidelines of Japan.

Singapore

This prospectus has not been and will not be lodged or registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the securities may not be circulated or distributed, nor may the securities be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore, or the SFA, (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275, of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the securities are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares of common stock pursuant to an offer made under Section 275 of the SFA except:

(i) to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

(ii) where no consideration is or will be given for the transfer;

(iii) where the transfer is by operation of law;

(iv) as specified in Section 276(7) of the SFA; or

(v) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Switzerland

The securities may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or SIX, or on any other stock exchange or regulated trading facility in Switzerland. This prospectus has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this prospectus nor any other offering or marketing material relating to the securities or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this prospectus nor any other offering or marketing material relating to the offering, the company or the securities have been or will be filed with or approved by any Swiss regulatory authority. In particular, this prospectus will not be filed with, and the offer of securities will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA, and the offer of securities has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or CISA. The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of securities.

United Kingdom

This prospectus is only being distributed to, and is only directed at, persons in the United Kingdom that are qualified investors within the meaning of Article 2(1)(e) of the Prospectus Directive that are also (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended, or the Order, and/or (ii) high net worth entities falling within Article 49(2)(a) to (d) of the Order and other persons to whom it may lawfully be communicated, each such person being referred to as a relevant person.

This prospectus and its contents are confidential and should not be distributed, published or reproduced (in whole or in part) or disclosed by recipients to any other persons in the United Kingdom. Any person in the United Kingdom that is not a relevant person should not act or rely on this document or any of its contents.

LEGAL MATTERS

The validity of the shares of common stock offered hereby and certain legal matters in connection with this offering will be passed upon for us by Honigman Miller Schwartz and Cohn LLP, Kalamazoo, Michigan. Cooley LLP, New York, New York, is counsel for the underwriters in connection with this offering.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our financial statements at December 31, 2014 and 2015 and for the years then ended, as set forth in their report (which contains an explanatory paragraph describing conditions that raise substantial doubt about our ability to continue as a going concern as described in Note 1 to the financial statements). We have included our financial statements in the prospectus and elsewhere in the registration statement in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1, including exhibits and schedules, under the Securities Act, with respect to the shares of common stock being offered by this prospectus. This prospectus, which constitutes part of the registration statement, does not contain all of the information in the registration statement and its exhibits. For further information with respect to us and the common stock offered by this prospectus, we refer you to the registration statement and its exhibits. Statements contained in this prospectus as to the contents of any contract or any other document referred to are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

You can read our SEC filings, including the registration statement, over the Internet at the SEC's website at www.sec.gov. You may also read and copy any document we file with the SEC at its public reference facilities at 100 F Street, NE, Washington, D.C. 20549. You may also obtain copies of these documents at prescribed rates by writing to the Public Reference Section of the SEC at 100 F Street, NE, Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference facilities. You may also request a copy of these filings, at no cost, by writing us at 43334 Seven Mile Road, Suite 1000, Northville, Michigan 48167, or telephoning us at (248) 681-9815.

Upon the closing of this offering, we will be subject to the information reporting requirements of the Securities Exchange Act of 1934 and we will file reports, proxy statements and other information with the SEC. These reports, proxy statements and other information will be available for inspection and copying at the public reference room and web site of the SEC referred to above. We also maintain a website at www.gemphire.com, at which, following the closing of this offering, you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. Information contained on or accessible through our website is not a part of this prospectus, and the inclusion of our website address in this prospectus is an inactive textual reference only.

Index to The Financial Statements

Gemphire Therapeutics Inc.
(Formerly Known as Michigan Life Therapeutics, LLC)
Financial Statements
For the years ended December 31, 2014 and 2015

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Report of Independent Registered Public Accounting Firm

The Board of Directors and Shareholders
Gemphire Therapeutics Inc.

We have audited the accompanying balance sheets of Gemphire Therapeutics Inc. (formerly known as Michigan Life Therapeutics, LLC) (the Company) as of December 31, 2014 and 2015, and the related statements of comprehensive loss, changes in convertible preferred stock and stockholders' and members' deficit and cash flows for each of the two years in the period ended December 31, 2015. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company's internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, 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. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Gemphire Therapeutics Inc. (formerly known as Michigan Life Therapeutics, LLC) at December 31, 2014 and 2015, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2015, in conformity with U.S. generally accepted accounting principles.

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 of the financial statements, the Company has 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 financial statements do not include any adjustments that might result from the outcome of this uncertainty.

/s/ Ernst & Young LLP
Detroit, Michigan
March 18, 2016, except for the effects of the reverse stock split described in Note 14, as to which the date is May 6, 2016.

Gemphire Therapeutics Inc.
(Formerly Known as Michigan Life Therapeutics, LLC)
Balance Sheets
(in thousands, except share amounts and par value)

	December 31, 2014	December 31, 2015	March 31, 2016 (unaudited)	Pro forma March 31, 2016 (unaudited)
Assets				
Current assets:				
Cash and cash equivalents	$ 317	$ 3,620	$ 1,629	$ 1,629
Prepaid expenses	13	23	24	24
Total current assets	330	3,643	1,653	1,653
Deferred offering costs	—	847	979	—
Deferred tax assets	18	10	5	5
Total assets	$ 348	$ 4,500	$ 2,637	$ 1,658
Liabilities, convertible preferred stock and stockholders' deficit				
Current liabilities:				
Accounts payable	$ 21	$ 531	$ 224	$ 224
Accrued liabilities	30	1,617	2,023	2,023
Deferred tax liabilities	18	10	5	5
Convertible notes to related parties	377	1,795	1,866	—
Convertible notes	360	4,629	4,595	—
Premium conversion derivative	73	345	331	—
Total current liabilities	879	8,927	9,044	2,252
Total liabilities	879	8,927	9,044	2,252
Commitments and contingencies (Note 5)				
Series A convertible preferred stock, $0.001 par value; no shares authorized as of December 31, 2014 and 2,325,581 shares authorized as of December 31, 2015 and March 31, 2016 (unaudited), no shares issued as of December 31, 2014 and 745,637 shares issued as of December 31, 2015 and March 31, 2016 (unaudited), no aggregate liquidation preference as of December 31, 2014 and aggregate liquidation preference of $7,953 and $8,102 as of December 31, 2015 and March 31, 2016 (unaudited), respectively, actual; no shares authorized, issued and outstanding as of March 31, 2016, pro forma (unaudited)	—	7,953	8,102	—
Stockholders' deficit:				
Common stock, $0.001 par value; 20,000,000 shares authorized as of December 31, 2014 and 17,674,419 shares authorized as of December 31, 2015, and March 31, 2016 (unaudited) respectively, 3,036,236, 3,758,488 and 3,758,488 shares issued and outstanding at December 31, 2014 and 2015 and March 31, 2016 (unaudited), respectively, actual; 100,000,000 shares authorized, 5,431,615 shares issued and outstanding as of March 31, 2016, pro forma (unaudited)	9	12	12	12
Additional paid-in capital	44	—	—	13,929
Accumulated deficit	(584)	(12,392)	(14,521)	(14,535)
Total stockholders' deficit	(531)	(12,380)	(14,509)	(594)
Total liabilities, convertible preferred stock and stockholders' deficit	$ 348	$ 4,500	$ 2,637	$ 1,658

See accompanying notes.

Gemphire Therapeutics Inc.
(Formerly Known as Michigan Life Therapeutics, LLC)
Statements of Comprehensive Loss
(in thousands, except share and per share amounts)

	Year Ended December 31,		Three Months Ended March 31,	
	2014	2015	2015	2016
			(unaudited)	
Operating expenses:				
General and administrative	$ 214	$ 3,177	$ 475	$ 1,050
Research and development	52	3,991	206	1,176
Acquired in-process research and development	—	908	908	—
Total operating expenses	266	8,076	1,589	2,226
Loss from operations	(266)	(8,076)	(1,589)	(2,226)
Interest (expense) income	(55)	(762)	(690)	127
Loss on convertible note extinguishment	—	(198)	—	—
Other income (expense)	1	7	—	(4)
Net loss	(320)	(9,029)	(2,279)	(2,103)
Other comprehensive loss, net of tax	—	—	—	—
Comprehensive loss	$ (320)	$ (9,029)	$ (2,279)	$ (2,103)
Net loss	$ (320)	$ (9,029)	$ (2,279)	$ (2,103)
Adjustment to redemption value on Series A convertible preferred stock	—	(2,968)	(2,517)	(149)
Premium upon substantial modification of convertible notes with certain stockholders	—	(1,047)	—	—
Net loss attributable to common stockholders	$ (320)	$ (13,044)	$ (4,796)	$ (2,252)
Net loss per share:				
Basic and diluted (Note 10)	$ (0.21)	$ (4.54)	$ (2.27)	$ (0.65)
Number of shares used in per share calculations:				
Basic and diluted	1,521,703	2,875,053	2,110,097	3,468,764
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited) (Note 2)		$ (2.95)		$ (0.42)
Weighted-average shares used in computing pro forma net loss attributable to common stockholders, basic and diluted (unaudited) (Note 2)		4,305,100		5,301,705

See accompanying notes.

Gemphire Therapeutics Inc.
(Formerly Known as Michigan Life Therapeutics, LLC)
Statements of Changes in Convertible Preferred Stock and Stockholders' and Members' Deficit
(in thousands, except share amounts)

	Series A Convertible Preferred Stock			Common Stock				
	Shares	Amount	Members' Deficit	Shares	Amount	Additional Paid-In Capital	Accumulated Deficit	Total Deficit
Balance at January 1, 2014	—	$ —	$ (264)	—	$ —	$ —	$ —	$ (264)
Net loss prior to merger	—	—	(124)	—	—	—	—	(124)
Effect of merger	—	—	388	1,987,817	6	(6)	(388)	—
Restriction of initial common stock issuances	—	—	—	(556,589)	(2)	2	—	—
Issuance of restricted stock awards	—	—	—	1,605,008	5	(5)	—	—
Share-based compensation — employee	—	—	—	—	—	53	—	53
Net loss post-merger	—	—	—	—	—	—	(196)	(196)
Balance at December 31, 2014	—	—	—	3,036,236	9	44	(584)	(531)
Issuance of convertible Series A preferred stock, net of issuance costs	745,637	4,985	—	—	—	—	—	—
Redemption value adjustment — Series A preferred stock	—	2,968	—	—	—	(1,130)	(1,838)	(2,968)
Issuance of common stock	—	—	—	677,685	3	908	—	911
Convertible note extinguishment loss	—	—	—	—	—	(106)	(941)	(1,047)
Issuance of restricted stock awards	—	—	—	44,567	—	—	—	—
Share-based compensation — employee	—	—	—	—	—	131	—	131
Share-based compensation — non-employee	—	—	—	—	—	153	—	153
Net loss	—	—	—	—	—	—	(9,029)	(9,029)
Balance at December 31, 2015	745,637	7,953	—	3,758,488	12	—	(12,392)	(12,380)
Redemption value adjustment — Series A preferred stock	—	149	—	—	—	(123)	(26)	(149)
Share-based compensation — employee	—	—	—	—	—	46	—	46
Share-based compensation — non-employee	—	—	—	—	—	77	—	77
Net loss	—	—	—	—	—	—	(2,103)	(2,103)
Balance at March 31, 2016	745,637	$ 8,102	$ —	3,758,488	$ 12	$ —	$ (14,521)	$ (14,509)

See accompanying notes.

Gemphire Therapeutics Inc.
(Formerly Known as Michigan Life Therapeutics, LLC)
Statements of Cash Flows
(in thousands)

	Year Ended December 31,		Three Month Ended March 31,	
	2014	2015	2015	2016
			(unaudited)	
Operating activities				
Net loss	$ (320)	$ (9,029)	$ (2,279)	$ (2,103)
Adjustments to reconcile net loss to net cash used in operating activities:				
Share-based compensation	53	284	23	123
Non-cash interest on promissory notes to related parties	19	—	—	—
Non-cash interest on convertible notes to related parties	5	40	11	31
Non-cash interest on convertible notes	1	100	22	78
Non-cash discount amortization on convertible notes to related parties	7	62	49	(55)
Non-cash discount amortization on convertible notes	5	261	227	(159)
Revaluation of premium conversion derivative	18	297	380	(22)
Non-cash loss on extinguishment of convertible notes	—	198	—	—
Non-cash acquisition of in-process research and development	—	908	908	—
Change in assets and liabilities:				
Prepaid expenses	2	(10)	(226)	(1)
Accounts payable	(6)	444	104	(242)
Accrued liabilities	21	1,012	161	294
Net cash used in operating activities	(195)	(5,433)	(620)	(2,056)
Investing activities				
Net cash provided by (used in) investing activities	—	—	—	—
Financing activities				
Proceeds from issuance of convertible notes	390	5,560	1,650	101
Proceeds from issuance of convertible notes to related parties	25	1,856	315	50
Proceeds from issuance of promissory notes to related parties	94	—	—	—
Proceeds from issuance of Series A convertible preferred stock	—	1,522	342	—
Proceeds from issuance of common stock	—	3	—	—
Deferred offering costs	—	(205)	—	(86)
Net cash provided by financing activities	509	8,736	2,307	65
Net increase in cash and cash equivalents	314	3,303	1,687	(1,991)
Cash and cash equivalents at beginning of period	3	317	317	3,620
Cash and cash equivalents at end of period	$ 317	$ 3,620	$ 2,004	$ 1,629
Supplemental disclosure of cash flow information:				
Cash paid for income taxes	$ —	$ —	$ —	$ —
Cash paid for interest	$ —	$ 2	$	$ —
Supplemental non-cash financing transactions:				
Conversion of convertible notes to Series A preferred stock	$ —	$ 2,778	$ 2,778	$ —
Exercise of premium conversion derivative	$ —	$ 685	$ 685	$ —
Redemption value change of Series A preferred stock	$ —	$ 2,968	$ 2,517	$ 149
Series A preferred stock issue proceeds receivable from investors	$ —	$ —	$ 1,180	$ —
Issuance of common stock for acquisition of in-process research and development	$ —	$ 908	$ 908	$ —
Bifurcation of premium conversion derivative related to convertible notes	$ 55	$ 842	$ 232	$ 9
Convertible note extinguishment	$ —	$ 1,426	$ —	$ —
Premium conversion derivative reduction upon convertible note extinguishment	$ —	$ 182	$ —	$ —
Conversion of related party promissory notes to convertible notes	$ 359	$ —	$ —	$ —
Deferred offering costs in accounts payable and accrued liabilities	$ —	$ 642	$ —	$ 46

See accompanying notes.

Gemphire Therapeutics Inc.
(Formerly Known as Michigan Life Therapeutics, LLC)
Notes to Financial Statements

1. The Company and Basis of Presentation

On November 10, 2008, Michigan Life Therapeutics, LLC (MLT) was organized as a limited liability company (LLC) in Michigan. On October 30, 2014, Gemphire Therapeutics Inc. (Gemphire) was incorporated as a C corporation in the state of Delaware. On November 1, 2014, MLT entered into a merger agreement with Gemphire whereby MLT was merged with and into Gemphire with Gemphire as the surviving entity; all outstanding membership interests of MLT were exchanged for shares of Gemphire's common stock. The purpose of the merger was to change the jurisdiction of MLT from Michigan to Delaware and to convert from an LLC to a corporation. All financial results presented prior to November 1, 2014 are from the operations of MLT. MLT and Gemphire are collectively referred to as the "Company" in the accompanying notes to the financial statements. The Company's headquarters are located in Northville, Michigan.

We are 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. The Company's primary activities have been conducting research and development activities, planning 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; expand its management scientific staff; finance its operations; and, find collaboration partners to further advance development and commercial efforts.

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 operations with equity issuances. 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.

Going Concern

The Company's ability to continue operating as a going concern is contingent upon, among other things, its ability to secure additional financing and to achieve and maintain profitable operations. The Company plans to issue additional convertible debt and equity instruments to finance operating and working capital requirements. While the Company expects to obtain the additional financing that is needed, there is no assurance that the Company will be successful in obtaining the necessary funding for future operations. These factors raise substantial doubt as to the Company's ability to continue as a going concern. The financial statements do not include any adjustments that might result from the outcome of these uncertainties.

Unaudited Interim Financial Statements

The accompanying financial statements and the financial data disclosed in the notes to the financial statements for the three months ended March 31, 2015 and 2016 have been prepared by the Company, without audit, pursuant to the rules and regulations of the Securities and Exchange Commission (SEC). The unaudited interim financial statements have been prepared on the same basis as the annual financial statements, and 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.

Gemphire Therapeutics Inc.
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Notes to Financial Statements — (Continued)

2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles (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.

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, 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 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. MLT was treated as a partnership for federal and state income tax purposes. Accordingly, no provision was made for income taxes for periods prior to November 1, 2014, since the Company's net loss (subject to certain limitations) was passed through to the income tax returns of its members. Upon incorporation on October 30, 2014, the Company became taxed as a corporation.

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. Additionally, under the provisions of ASC 718, the Company is required to include an estimate of the number of awards that will be forfeited in calculating compensation costs, which are recognized over the requisite service period of the awards (typically the vesting period of the awards). 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, 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 includes estimates and assumptions that require the Company's judgment. These estimates and assumptions include 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 (IPO) or sale. Significant changes to the key assumptions used in the valuations could result 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). The Series A preferred stock is classified outside of permanent equity, in mezzanine equity, on the Company's December 31, 2015 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. See Note 7 — *Convertible Series A Preferred Stock* for further discussion.

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

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Notes to Financial Statements — (Continued)

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 to treat cardiovascular and metabolic diseases. 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.

Unaudited Pro Forma Balance Sheet and Net Loss Per Common Share

The unaudited pro forma balance sheet as of March 31, 2016 reflects: (1) the automatic conversion of all outstanding shares of the Company's Series A preferred stock into an aggregate of 745,637 shares of common stock immediately prior to the completion of an IPO; (2) the issuance of 59,992 shares of common stock in accrued dividends to the Company's existing holders of the Series A preferred stock upon the conversion of their Series A preferred stock into common stock in connection with an IPO, as described in Note 5 below, immediately prior to the closing of an IPO; (3) the conversion of the convertible notes into 867,498 shares of common stock and the extinguishment of the premium conversion derivative related to the convertible notes immediately prior to the closing of an IPO, and (4) the accelerated vesting of 162,945 shares of restricted stock unvested as of March 31, 2016, valued at approximately $14,000, held by certain employees upon the closing of an IPO. The pro forma basic and diluted net loss per share attributable to common stockholders does not include shares expected to be sold and related proceeds to be received from an IPO.

Recent Accounting Pronouncements

In July 2013, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2013-11, *Income Taxes — Topic 740*, which is an amendment to the accounting guidance on income taxes. This guidance provides clarification on the financial statement presentation of an unrecognized benefit when a net operating loss carryforward, a similar tax loss, or a tax credit carryforward exists. The amendment was effective for the Company for interim and annual periods beginning after December 15, 2013, with early adoption permitted. The adoption of this standard did not have a material impact on the Company's financial statements.

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 2015, the FASB agreed to allow companies to delay the implementation of this standard for one year effective for annual reporting periods beginning after December 15, 2017, including interim periods within that reporting period. Early application is permitted only for periods beginning after December 15, 2016. The Company is evaluating its implementation method and the impact of adopting this prospective guidance on its financial statements.

In June 2014, the FASB issued ASU 2014-10, *Elimination of Certain Financial Reporting Requirements, including an Amendment to Variable Interest Entities Guidance in Topic 810, Consolidation*. This guidance

removed all incremental financial reporting requirements from GAAP for development stage entities, thereby improving financial reporting by eliminating the cost and complexity associated with providing that information. The effective date of the amendment is staggered for public and nonpublic entities with the first date being for annual periods beginning after December 15, 2014, with early adoption permitted for financial statements that have not yet been issued or available to be issued. The Company elected to adopt this standard early to take effect in the accompanying financial statements and related footnotes.

In June 2014, the FASB issued ASU 2014-12, *Compensation — Stock Compensation (Topic 718): Accounting for Share-Based Payments When the Terms of an Award Provide That a Performance Target Could Be Achieved after the Requisite Service Period* (ASU 2014-12). The amendments in ASU 2014-12 require that a performance target that affects vesting and that could be achieved after the requisite service period be treated as a performance condition. A reporting entity should apply existing guidance in ASC 718, as it relates to awards with performance conditions that affect vesting to account for such awards. The amendments in ASU 2014-12 are effective for annual periods and interim periods within those annual periods beginning after December 15, 2015. Early adoption is permitted. Entities may apply the amendments in ASU 2014-12 either: (1) prospectively to all awards granted or modified after the effective date; or (2) retrospectively to all awards with performance targets that are outstanding as of the beginning of the earliest annual period presented in the financial statements and to all new or modified awards thereafter. The adoption of this standard did not have a material impact on the Company's financial statements.

In August 2014, the FASB issued Accounting Standards Update No. 2014-15, *Presentation of Financial Statements — Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern* (ASU 2014-15), which requires management to evaluate, in connection with preparing financial statements for each annual and interim reporting period, whether there are conditions or events that, considered in the aggregate, raise substantial doubt about an entity's ability to continue as a going concern within one year after the date that the financial statements are issued (or within one year after the date that the financial statements are available to be issued, when applicable) and provide related disclosures. ASU 2014-15 is effective for the annual period ending after December 15, 2016, and for annual and interim periods thereafter. Early adoption is permitted. The Company elected to adopt this standard early to take effect in the accompanying financial statements and related footnotes.

In January 2015, the FASB issued ASU 2015-01, *Income Statement — Extraordinary and Unusual Items* (ASU 2015-01). ASU 2015-01 eliminates from GAAP the concept of extraordinary items. As a result, an entity will no longer be required to separately present an extraordinary item on its statement of comprehensive loss, net of tax, after income from continuing operations, or disclose income taxes and net income per share data applicable to an extraordinary item. However, ASU 2015-01 will still retain the presentation and disclosure guidance for items that are unusual in nature and occur infrequently. ASU 2015-01 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2015. Early adoption is permitted provided the guidance is applied from the beginning of the fiscal year of adoption. The adoption of this standard did not have a material impact on the Company's financial statements, absent any material transactions in future periods that would qualify for extraordinary item presentation under the prior guidance.

In April 2015, the FASB issued ASU 2015-03, *Interest — Imputation of Interest* (ASU 2015-03). ASU 2015-03 requires that debt issuance costs related to a recognized debt liability be presented in the balance sheet as a direct deduction from the carrying amount of that debt liability, consistent with debt discounts. The recognition and measurement guidance for debt issuance costs are not affected by the

amendments in this update. For public entities, ASU 2015-03 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2015. The adoption of this standard did not have a material impact on the Company's financial statements.

In November 2015, the FASB issued ASU 2015-17, *Income Taxes (Topic 740): Balance Sheet Classification of Deferred Taxes* (ASU 2015-17). The new guidance simplifies the presentation of deferred income taxes by requiring that deferred tax liabilities and assets be classified as noncurrent in a classified statement of financial position. ASU 2015-17 applies to all entities that present a classified statement of financial position. The current requirement that deferred tax liabilities and assets of a tax-paying component of an entity be offset and presented as a single amount is not affected by this ASU. For public entities, ASU 2015-17 is effective for financial statements issued for annual periods beginning after December 15, 2016 with earlier application permitted. The new guidance may be applied either prospectively or retrospectively to all periods presented. The Company is evaluating its implementation method and the impact of adopting this prospective guidance on its financial statements.

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). 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 and is to be applied utilizing a modified retrospective approach. The Company is currently evaluating the new guidance to determine the impact it may have on its financial statements.

In March 2016, the FASB issued ASU 2016-09, *Compensation — Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting*. This ASU simplifies the accounting for share-based payment award transactions including: income tax consequences, classification of awards as either equity or liabilities and classification on the statement of cash flows. This ASU is effective for fiscal years beginning after December 15, 2016, including interim periods within those fiscal years. Early adoption is permitted. The Company is currently evaluating the requirements of the new guidance and has not yet determined its impact on the Company's financial statements.

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3. Accrued Liabilities

Accrued liabilities consist of the following (in thousands):

	December 31, 2014	December 31, 2015	March 31, 2016 (unaudited)
Accrued offering costs	$ —	$ 575	$ 687
Legal costs	25	234	281
Payroll	—	2	34
Other research and development expenses	—	759	859
Other general and administrative expenses	5	47	162
Total	$ 30	$ 1,617	$ 2,023

4. Debt

Promissory Notes to Related Parties

The Company issued promissory notes to related parties (the Promissory Notes) at a compound interest rate of 8% per annum for an aggregate principal amount of $0.3 million on various dates from March 2009 through October 2014 with maturity dates through October 31, 2014. The Promissory Notes along with accrued interest were exchanged for convertible notes (the Convertible Notes) on November 1, 2014, in the amount of $0.4 million inclusive of accrued interest.

Convertible Notes

The Company issued a series of Convertible Notes with certain investors beginning with the Promissory Note conversion on November1, 2014 and ending on February 18, 2015, whereby a total of $2.7 million was loaned to the Company, of which $2.0 million was loaned in 2015. Interest for the Convertible Notes compounded on a daily basis at a rate of 8 percent per annum. The Convertible Notes were converted into shares of the Company's Series A preferred stock upon close of the preferred stock financing (the Preferred Financing) on March 31, 2015. The conversion equaled 125% of the unpaid principal plus unpaid accrued interest on the Convertible Notes.

At the time of their issuance, the Convertible Notes contained a conversion premium with regard to the conversion into the Series A preferred stock. The Company determined that the redemption feature under the Convertible 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 Convertible Notes. The discount was amortized to interest expense over the term of the Convertible Notes using the straight-line method. The embedded derivative was accounted for separately on a fair market value basis. The embedded derivative was included as a premium conversion derivative on the accompanying balance sheets as of December 31, 2014 and amounted to $73,000. The Company recorded the fair value changes of the premium conversion derivative to interest expense that amounted to $18,000 and $0.4 million for the years ended December 31, 2014 and 2015, respectively, and $18,000 and zero for the three months ended March 31, 2015 and 2016, respectively. The Convertible Notes were converted into Series A preferred stock on March 31, 2015.

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Interim Notes

On July 31, 2015, the Company entered into a convertible interim note financing (the Interim Notes), pursuant to which certain investors agreed to loan the Company approximately $2.8 million. The Interim Notes accrue interest at a rate of 8% per annum, compounded annually, and 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 does not occur before July 31, 2016, the parties would then negotiate a price for conversion into a new round of stock.

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 continue to accrue interest at an 8% rate per annum compounded annually, but have been 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 was adjusted from $2.15 in connection with the 1-for-3.119 reverse split of our stock, which became effective on April 27, 2016) based on 100% of outstanding principal and unpaid accrued interest. Lastly, if a Preferred Stock Financing, change of control, or public transaction does not occur before December 31, 2016, the parties have agreed to then negotiate a conversion price into a new round of stock.

The December 2015 amendment resulted in a substantial modification to the original July 2015 Interim Notes whereby a contingent conversion feature was added to the Interim Notes. The Company recorded the Interim Note amendment under the provisions of extinguishment accounting. The fair value of the amended Interim Notes was $1.2 million higher than the carrying value of the Interim Notes and the underlying premium conversion derivative on the date of the modification. The portion of the fair value increase over carrying value attributed to Interim Note holders who were also equity investors in the Company was recorded as an adjustment to equity in the amount of $1.0 million. The remaining $0.2 million of the increase in fair value over carrying value was recorded as a loss on convertible note extinguishment on the accompanying statements of comprehensive loss for the year ended December 31, 2015.

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 accrue interest at an 8% rate per annum compounded annually and 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 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 does not occur before December 31, 2016, the parties have agreed to then negotiate a conversion price into a new round of stock.

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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 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 fair value of the derivative associated with the Interim Notes was $0.3 million at December 31, 2015 and March 31, 2016 and was included as premium conversion derivative on the accompanying balance sheets. The Company recorded the fair value changes of the premium conversion derivative to interest (income) expense that amounted to $(0.1) million for the year ended December 31, 2015 and $(22,000) for the quarter ended March 31, 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, 2015, 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 are 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 (which was adjusted from $2.15 in connection with the 1-for-3.119 reverse split of our stock, which became effective on April 27, 2016). The dividends effectively accrue daily on each share of preferred stock. The dividends are 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 believes that the Company is 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 shall be paid in shares of common stock at the conversion price for the Series A preferred stock in effect at that time, which is 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 are payable upon a contingent event, the Company has not recorded them in the accompanying financial statements. Cumulative unpaid dividends for the Series A preferred stock totaled zero as of December 31, 2014, and $0.3 million and $0.4 million as of December 31, 2015 and March 31, 2016, respectively.

Other Agreements

A cancellable facility agreement was in place that provided for fixed monthly rent for the years ended December 31, 2014 and 2015 and three months ended March 31, 2106. The total rent expense for the years ended December 31, 2014 and 2015 was $6,000 and $23,000, respectively. The rent expense for the three months ended March 31, 2015 and 2016 was $5,000 and $8,000, respectively.

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6. License Agreement

In April 2011, the Company entered into the Pfizer Agreement for a worldwide exclusive license to certain patent rights to make, use, sell, offer for sale and import the clinical product candidate gemcabene. In exchange for this license, 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 regulatory submission 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 or any product containing 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 expiration of the last valid claim of the licensed patent rights including any patent term extensions or supplemental protection certificates. 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 market 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 March 31, 2016.

The Pfizer Agreement will expire upon expiration of the last royalty term. Either party may terminate the Pfizer Agreement for the other party's uncured material breach or upon specified bankruptcy events. Pfizer may terminate the Pfizer Agreement if the Company or any of its sublicenses challenge the validity, enforceability or ownership of the licensed patents. Additionally, Pfizer may revoke the license if the Company is unable to adequately commercialize gemcabene by April 2021.

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, 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 the Convertible Notes, all of which converted into shares of Series A preferred stock.

The Series A preferred stock has the following rights and preferences:

Dividend Rights

Dividends effectively accrue on a daily basis at a simple rate of 8% per annum on the sum of the original per share issue price. Dividends are effectively deemed declared daily and are payable upon the occurrence of certain events. In addition, the holders of the Series A preferred stock have rights to participate in common stock dividends, entitling holders of Series A preferred stock to a dividend payable at the same

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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, but unpaid dividends were $0.3 million and $0.4 million as of December 31, 2015 and March 31, 2016, respectively (See Note 5 — *Commitments and Contingencies*).

Voting Rights

Each share of Series A preferred stock shall be 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 is 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, is not subject to a separate vote of the Series A preferred stockholders, but any subsequent increases to the authorized option pool are 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 is 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 shall be entitled to the assets of the Company legally available for distribution before any distribution or payment is made to the holders of common stock. The distribution amount shall 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 shall be 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.

Conversion Rights

Shares of Series A preferred stock, at the option of the holder, may be converted at any time into shares of common stock. The conversion rate shall be obtained by dividing the Series A preferred stock original issue price of $6.70585 per share (which was adjusted from $2.15 in connection with the 1-for-3.119 reverse split of our stock, which became effective on April 27, 2016) by the conversion price per share in effect at the time of conversion. The Series A conversion price is initially equal to the original issue price, but shall be adjusted on a broad-based weighted average basis in connection with certain dilutive events. The conversion price for the Series A preferred stock was $6.70585 per share at December 31, 2015 and March 31, 2016. The Series A holder would also be entitled to receive additional shares of common stock for any unpaid Series A dividends (whether or not declared).

Shares of Series A preferred stock shall automatically be 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 whereby the common stock of the Company is listed on a U.S. national securities exchange and with a public offering price of at least 1.5 times the Series A original issue price of $6.70585 and net cash proceeds before underwriting discounts of at least $50 million.

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Redemption Rights

The holders of at least 80% of the outstanding shares of Series A preferred stock may require 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 is 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 may at times be based on fair market value. The assumptions used in calculating the estimated fair market value at each reporting period represent the Company's best estimate, however, inherent uncertainties are involved. As a result, if factors or assumptions change, the estimated fair value could be materially different. As of December 31, 2015 and March 31, 2016, the estimated fair value of the Series A preferred stock was $7.2 million and $7.6 million, respectively.

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 since it is probable that the instruments will become redeemable. In the absence of retained earnings, these charges are 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 is 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 (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' and Members' Deficit

The membership interests of MLT were converted to 1,431,228 shares of the Company's common stock on November 1, 2014. The MLT members' deficit was transferred to stockholders' deficit on the accompanying balance sheets upon conversion to a C Corporation at that time.

Common Stock

The Company had 3,758,488 shares of its common stock issued and outstanding as of December 31, 2015 and March 31, 2016. 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.

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 March 31, 2016.

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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 the Series A preferred stockholders.

Deferred Offering Costs

Deferred offering costs, primarily consisting of legal, accounting and other direct fees and costs relating to the IPO, are capitalized. The deferred offering costs will be offset against the Company's planned IPO proceeds upon the closing of the offering. In the event the offering is terminated, all of the deferred offering costs will be expensed within income from operations. There was $0.8 million and $1.0 million in deferred offering costs capitalized as of December 31, 2015 and March 31, 2016, respectively. There were no deferred offering costs capitalized as of December 31, 2014.

9. Share-Based Compensation

The Company recognized $53,000 and $0.3 million of share-based compensation related to employees and non-employees for the years ended December 31, 2014 and 2015, respectively, and $23,000 and $123,000 for the three months ended March 31, 2015 and 2016, respectively. Share-based compensation was included in general and administrative expense in the accompanying statements of comprehensive loss for all periods presented.

Restricted Stock Awards

During the years ended December 31, 2014 and 2015, and the three month periods ended March 31, 2015 and 2016 the Company granted an aggregate of 1,605,008, 44,567, 44,567 and zero restricted stock awards (RSAs), respectively, to certain of its employees, members of its board of directors and consultants subject to a 2014 Shareholders Agreement (the Agreement). The RSAs are subject to various vesting schedules and generally vest ratably over a six to 24 month period coinciding with their respective service periods. During the years ended December 31, 2014 and 2015, and the three month periods ended March 31, 2015 and 2016, 610,395, 691,087, 174,241 and 165,505 RSAs vested, respectively, and no RSAs were forfeited during these periods.

The grant-date fair value of the RSAs issued during the years ended December 31, 2014 and 2015 and the three months ended March 31, 2015 and 2016 was $140,000, $9,000, $9,000 and zero, respectively. Grant date fair market value 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 will be determined by the Company's board of directors until such time as the Company's common stock is listed on an established stock exchange.

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A summary of RSA grant activity is as follows:

	Number of Shares
Non-vested at January 1, 2014	—
Granted	1,605,008
Vested	(610,395)
Non-vested at December 31, 2014	994,613
Granted	44,567
Vested	(691,087)
Non-vested at December 31, 2015	348,093
Granted	—
Vested	(165,505)
Non-vested at March 31, 2016	182,588

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. Under this plan, 305,278 stock options were granted beginning on May 1, 2015 through December 31, 2015 and no options were granted in the first quarter ended March 31, 2016. Options granted under the 2015 Plan either generally vested immediately, or ratably over a two to 36 month period coinciding with their respective service periods. As of December 31, 2015 and March 31, 2016, 15,337 shares were available for future issuance under the 2015 Plan. During the year ended December 31, 2015 and the three months ended March 31, 2016, 104,907 and 35,385 stock options vested, respectively, and no stock options were forfeited.

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. Forfeitures are estimated based on the Company's historical analysis of both options and awards that forfeited prior to vesting.

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The weighted-average assumptions used in the Black-Scholes option-pricing model are as follows:

	Year Ended December 31,		Three Months Ended March 31,
	2014	2015	2016
Expected stock price volatility	—	71.0%	—
Expected life of options (years)	—	5.5	—
Expected dividend yield	—	0%	—
Risk free interest rate	—	1.7%	—

The following table summarizes the Company's stock option plan activity for the year ended December 31, 2015 and the three months ended March 31, 2016 as follows:

	Number of Options	Weighted Average Exercise Price	Weighted-Average Remaining Contractual Term (years)	Aggregate Intrinsic Value[2]
Outstanding at December 31, 2014	—	—	—	—
Granted	305,278	$ 2.42	—	$ 1,042,000
Exercised	(2,436)	$ 1.34	—	(11,000)
Forfeited/Cancelled	—	—	—	—
Outstanding at December 31, 2015	302,842	$ 2.43	9.6	$ 1,031,000
Granted	—	—	—	—
Exercised	—	—	—	—
Forfeited/Cancelled	—	—	—	—
Outstanding at March 31, 2016	302,842	$ 2.43	9.3	$ 1,461,000
Vested and exercisable at March 31, 2016	140,292	$ 2.05	9.3	$ 724,000
Vested and expected to vest at March 31, 2016[1]	302,842	$ 2.43	9.3	$ 1,461,000

(1) Options that are expected to vest are net of estimated future option forfeitures in accordance with the provisions of ASC 718, *Compensation — Stock Compensation*

(2) 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, 2015 and March 31, 2016 of $5.83 and $7.20 per share, respectively.

The weighted average fair value per share of options granted during the year ended December 31, 2015 was $1.50.

Unrecognized share-based compensation cost for the RSAs and stock options issued under the Agreement and the 2015 Plan was $0.4 million (net of estimated forfeitures) as of March 31, 2016. Approximately $40,000 of the unrecognized compensation cost was related to the RSAs as of March 31, 2016, and $0.3 million 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 March 31, 2016. The unrecognized share-based expense is expected to be recognized over a weighted average period of 0.5 years for the RSAs and 1.4 years for the stock options at March 31, 2016.

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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 have rights to participation 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 convert into if such shares had converted on the record date. The Series A preferred stock, however, does 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. Prior to the Company's incorporation, no common shares were outstanding when the Company operated as MLT.

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, shares of Series A preferred stock and convertible notes are considered common stock equivalents for this purpose. Diluted earnings is computed utilizing the treasury method for the RSAs and stock options, and in the case of the Series A preferred stock, either the two-class method or the if-converted method, whichever is more dilutive. Diluted earnings with respect to the convertible notes utilizing the if-converted method was not applicable during the years ended December 31, 2014 and 2015 and three months ended March 31, 2015 and 2016, as no conditions required for conversion have occurred during these periods. 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, 2014 and 2015 and three months ended March 31, 2015 and 2016. The following table sets forth the computation of basic and diluted loss per share (in thousands, except share and per share amounts):

	Year Ended December 31,		Three Months Ended March 31,	
	2014	2015	2015	2016
			(unaudited)	
Numerator:				
Net loss	$ (320)	$ (9,029)	$ (2,279)	$ (2,103)
Adjustment for Series A preferred stock redemption value accretion	—	(2,968)	(2,517)	(149)
Premium upon substantial modification of convertible notes with certain stockholders	—	(1,047)	—	—
Net loss attributed to common stock holders	$ (320)	$ (13,044)	$ (4,796)	$ (2,252)
Denominator:				
Basic and diluted weighted average common shares outstanding	1,521,703	2,875,053	2,110,097	3,468,764
Basic and diluted net loss per share	$ (0.21)	$ (4.54)	$ (2.27)	$ (0.65)

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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 December 31,		Three Months Ended March 31,	
	2014	2015	2015	2016
			(unaudited)	
Restricted stock awards	994,613	348,093	864,932	182,588
Stock options	—	302,842	—	302,842
Series A	—	745,637	745,637	745,637
Convertible notes	—	828,751	—	867,498

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.

As of December 31, 2014 and 2015 and March 31, 2016, the fair values of cash and cash equivalents, 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 Convertible Notes and Interim Notes was based on amortized cost which was deemed to approximate fair value. The derivative liability associated with the conversion premium on the Convertible Notes and Interim Notes 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. There were no transfers between fair value hierarchy levels for the years ended December 31, 2014 and 2015 and for the three months ended March 31, 2015 and 2016.

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The fair value of financial instruments measured on a recurring basis is as follows (in thousands):

December 31, 2014				
Description	**Total**	**Level 1**	**Level 2**	**Level 3**
Liabilities:				
Premium conversion derivative	$ 73	$ —	$ —	$ 73
Total liabilities at Fair Value	$ 73	$ —	$ —	$ 73

December 31, 2015				
Description	**Total**	**Level 1**	**Level 2**	**Level 3**
Liabilities:				
Premium conversion derivative	$ 345	$ —	$ —	$ 345
Total liabilities at Fair Value	$ 345	$ —	$ —	$ 345

March 31, 2016 (unaudited)				
Description	**Total**	**Level 1**	**Level 2**	**Level 3**
Liabilities:				
Premium conversion derivative	$ 331	$ —	$ —	$ 331
Total liabilities at Fair Value	$ 331	$ —	$ —	$ 331

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):

	Year Ended December 31,		Three Months Ended March 31,	
	2014	2015	2015	2016
			(unaudited)	
Balance as of beginning of period	$ —	$ 73	$ 73	$ 345
Issuance of underlying convertible notes	55	842	842	8
Change in fair value of premium conversion derivative	18	297	297	(22)
Reversal of premium conversion derivative associated with note extinguishment	—	(182)	(182)	—
Redemption of underlying convertible notes	—	(685)	(685)	—
Balance as of end of period	$ 73	$ 345	$ 345	$ 331

There were no financial instruments measured on a non-recurring basis for any of the periods presented.

12. Income Taxes

The effective tax rate for the years ended December 31, 2014 and 2015 and three months ended March 31, 2015 and 2016 was zero percent. MLT was treated as a partnership for federal and state income tax purposes. Accordingly, no provision was made for income taxes for periods prior to the merger, since the Company's net loss (subject to certain limitations) was passed through to the income tax returns of its members. Upon the incorporation of Gemphire on October 30, 2014, the Company became taxed as a corporation.

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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:

	Year Ended December 31,		Three Months Ended March 31,	
	2014	2015	2015	2016
			(unaudited)	
Income tax (benefit) provision at federal statutory rate	(34.0)%	(34.0)%	(34.0)%	(34.0)%
Non-benefited losses from valuation allowance	36.8	38.2	37.6	37.0
State income tax, net of federal benefit	(4.0)	(4.0)	(4.0)	(4.0)
Convertible notes	1.2	0.6	—	2.0
Other	—	(0.8)	0.4	(1.0)
Effective tax rate	—%	—%	—%	—%

Significant components of the Company's deferred tax assets and liabilities are summarized in the tables below as of (in thousands):

	As of December 31,		As of March 31,
	2014	2015	2016
			(unaudited)
Deferred tax assets:			
Federal and state operating loss carryforwards	$ 93	$ 2,723	$ 3,525
Acquired intangibles	—	345	345
Convertible notes	11	460	369
Charitable contributions	—	4	4
Accruals and reserves	—	41	73
Research and development credit carryforwards	—	95	125
	104	3,668	4,441
Valuation allowance	(72)	(3,657)	(4,436)
Total deferred tax assets, net of valuation allowance	32	11	5
Deferred tax liabilities:			
Restricted stock awards	(32)	(11)	(5)
Total deferred tax liabilities	(32)	(11)	(5)
Net deferred tax assets	$ —	$ —	$ —

	As of December 31,		As of March 31,
	2014	2015	2016
			(unaudited)
As reported on the balance sheets:			
Non-current deferred tax assets, net	$ 18	$ 10	$ 5
Current deferred tax liabilities, net	(18)	(10)	(5)
Net deferred tax assets or liabilities	$ —	$ —	$ —

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As of December 31, 2014 and 2015 and March 31, 2016, the Company had gross deferred tax assets of approximately $0.1 million, $3.7 million and $4.4 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 fully offset by a valuation allowance of $72,000, $3.7 million and $4.4 million as of December 31, 2014 and 2015 and March 31, 2016, 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. Except for the Convertible Notes and a portion of the RSAs, the deferred tax assets and liabilities are non-current as of the dates reported.

As of December 31, 2014 and 2015 and March 31, 2016, the tax effect of the Company's federal net operating loss carryforwards was approximately $83,000, $2.4 million and $3.1 million, respectively. The Company had federal research credit carryforwards as of December 31, 2014 and 2015 and March 31, 2016 of approximately $114, $95,000 and $125,000, respectively. The federal net operating loss and tax credit carryforwards will begin to expire in 2034 if not utilized. As of December 31, 2014 and 2015 and March 31, 2016, the Company had state net operating loss carryforwards with a tax effect of approximately $10,000, $0.3 million and $0.4 million, respectively. The Company did not have state research credit carryforwards as of December 31, 2014 and 2015 and March 31, 2016. The state net operating loss carryforwards will begin to expire in 2024 if not utilized.

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, 2014 and 2015 and March 31, 2016, and as such, no interest or penalties were recorded to income tax expense.

The Company's corporate returns are subject to examination for the 2014 tax year in the federal and Michigan jurisdictions. Prior to this period, the Company filed partnership returns, resulting in its income being passed through to its members.

13. Related Party Transactions

The Company rented an office in Northville, Michigan from an LLC owned by two officers under a short-term agreement during the years ended December 31, 2014 and 2015 and three months ended March 31, 2016. Rent expense under the related party agreement was $6,000, $23,000, $5,000 and $8,000 during the years ended December 31, 2014 and 2015 and three months ended March 31, 2015 and 2016, respectively. A prepaid rent balance related to the short-term agreement amounted to $3,000 as of both December 31, 2014 and 2015 and March 31, 2016. As of December 31, 2014, amounts owed to an officer and a member of management of the Company under the Convertible Notes, inclusive of interest, were $0.3 million and $48,000, respectively. In addition, amounts owed to an investor related to one of the Company's officers, inclusive of interest, as of December 31, 2014 under the Convertible Note were $25,000.

Gemphire Therapeutics Inc.
(Formerly Known as Michigan Life Therapeutics, LLC)
Notes to Financial Statements — (Continued)

During the first quarter of 2015, the Company issued $2.0 million of additional Convertible Notes (the 2015 Notes) as part of the Convertible Notes described in Note 4 — *Debt*. The 2015 Notes included four notes in the aggregate of $0.3 million issued to investors who were related to one board member and three officers of the Company. On March 31, 2015, all of the Convertible Notes (including the 2015 Notes) were converted into 516,421 shares of Series A preferred stock. The conversion included a total of 68,649 shares of Series A preferred stock issued to two officers of the Company, and 63,967 shares of Series A preferred stock issued to investors related to one board member and three officers of the Company.

During the third quarter of 2015, the Company issued $2.8 million of Interim Notes as described in Note 4 — *Debt*. The Interim Notes included five notes issued to two officers and three board members (or entities they control) in the amount of $0.5 million. In addition, the Interim Notes included four notes to investors who were related to three of the Company's officers and to one of the Company's key employees in the amount of $0.3 million.

In December 2015, the Company issued an additional $2.7 million of Interim Notes, as described in Note 4 — *Debt,* which included six notes issued to two officers and four board members in the amount of $0.6 million. The December 2015 Interim Note issuances also included five notes to investors who were related to three of the Company's officers in the amount of $0.2 million.

In February 2016, the Company issued an additional $151,000 of Interim Notes, as described in Note 4 — *Debt*, 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.

14. Subsequent Events

The Company has evaluated subsequent events that may require adjustment to or disclosure in the financial statements through March 18, 2016, the date the financial statements were originally issued, through May 6, 2016, the date on which the retrospectively revised financial statements were issued to reflect the Reverse Stock Split and interim financial statements for the three months ended March 31, 2016 were issued, and through June 13, 2016 for inclusion in the registration statement on Form S-1.

Reverse Stock Split

In April 2016, the Board of Directors and shareholders approved a 1-for-3.119 reverse stock split (the Reverse Stock Split) for all common and Series A preferred stock, which became effective on April 27, 2016 upon the filing of an amendment to the Company's 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 have been retroactively adjusted to reflect this Reverse Stock Split for all periods presented.

Interim Notes

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 continue to accrue interest at an 8% rate per annum compounded annually, but have been amended so that 125% of the unpaid principal and accrued interest, automatically converts 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).

The April 2016 Interim Note issuances 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 Note issuances also

Gemphire Therapeutics Inc.
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Notes to Financial Statements — (Continued)

included three notes to investors who were related to three of the Company's directors in the aggregate amount of $2.3 million.

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 does not occur, the Interim Notes will become payable on demand anytime after December 31, 2016.

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 Company's stockholders also approved the A&R 2015 Plan in April, which will become effective immediately upon the execution and delivery of the underwriting agreement related to this offering. 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.

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 date of this offering. The Company's stockholders also approved the ESPP in April, which will become effective immediately upon the execution and delivery of the underwriting agreement related to this offering. The Company initially reserved 150,000 shares of common stock for issuance under the ESPP.

Stock-Based Compensation

In April and June 2016, the compensation committee of the board of directors of the Company approved the award of options to purchase an aggregate of 1,825,200 shares of common stock to the Company's officers, directors and employees, with an exercise price equal to the per share price of this offering, to be granted in connection with this offering.

Lease Agreement

In May 2016, the Company entered into a new lease agreement, commencing August 1, 2016, for approximately 5,300 square feet of office space to be used for the Company's headquarters. The initial term of the agreement is 3 years with an initial monthly base rent of approximately $8,400.

3,750,000 Shares

Common Stock

PRELIMINARY PROSPECTUS

Joint Book-Running Managers

Jefferies
RBC Capital Markets

Co-Lead Manager

Canaccord Genuity

Co-Manager

Roth Capital Partners

, 2016

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth all costs and expenses, other than underwriting discounts and commissions, payable by Gemphire Therapeutics Inc., or the Registrant, in connection with the sale of the common stock being registered. All amounts shown are estimates except for the Securities and Exchange Commission (SEC), registration fee, the Financial Industry Regulatory Authority, Inc. (FINRA), filing fee and the NASDAQ Global Market listing fee.

	AMOUNT TO BE PAID
SEC registration fee	$ 5,646
FINRA filing fee	8,909
NASDAQ Global Market filing fee	125,000
Printing and engraving expenses	250,000
Legal fees and expenses	1,175,000
Accounting fees and expenses	365,000
Transfer agent and registrar fees and expenses	5,000
Miscellaneous expenses	65,445
Total	$ 2,000,000

Item 14. Indemnification of Directors and Officers.

The Registrant is incorporated under the laws of the State of Delaware. Section 145 of the Delaware General Corporation Law provides that a Delaware corporation may indemnify any persons who were, are, or are threatened to be made, parties 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 such corporation), by reason of the fact that such person is or was an officer, director, employee or agent of such corporation, or is or was serving at the request of such corporation as an officer, director, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, provided that such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests and, with respect to any criminal action or proceeding, had no reasonable cause to believe that his or her conduct was illegal. A Delaware corporation may indemnify any persons who were, are, or are threatened to be made, a party to any threatened, pending or completed action or suit by or in the right of the corporation by reason of the fact that such person is or was a director, officer, employee or agent of such corporation, or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit provided such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests except that no indemnification is permitted without judicial approval if the officer or director is adjudged to be liable to the corporation. Where an officer or director is successful on the merits or otherwise in the defense of any action referred to above, the corporation must indemnify him or her against the expenses (including attorneys' fees) actually and reasonably incurred.

The Registrant's amended and restated certificate of incorporation provides for the indemnification of its directors to the fullest extent permitted under the Delaware General Corporation Law. The Registrant's amended and restated bylaws provide for the indemnification of its directors and officers to the fullest extent permitted under the Delaware General Corporation Law. Each of the Registrant's amended and restated certificate of incorporation and amended and restated bylaws will become effective upon the closing of this offering.

Section 102(b)(7) of the Delaware General Corporation Law permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duties as a director, except for liability for any:

- § transaction from which the director derives an improper personal benefit;
- § act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- § unlawful payment of dividends or redemption of shares; or
- § breach of a director's duty of loyalty to the corporation or its stockholders.

The Registrant's amended and restated certificate of incorporation includes such a provision. Under the Registrant's amended and restated bylaws, expenses incurred by any director or officers in defending any such action, suit or proceeding in advance of its final disposition shall be paid by the Registrant upon delivery to it of an undertaking, by or on behalf of such director or officer, to repay all amounts so advanced if it shall ultimately be determined that such director or officer is not entitled to be indemnified by the Registrant, as long as such undertaking remains required by the Delaware General Corporation Law.

Section 174 of the Delaware General Corporation Law provides, among other things, that a director who willfully or negligently approves of an unlawful payment of dividends or an unlawful stock purchase or redemption, may be held liable for such actions. A director who was either absent when the unlawful actions were approved or dissented at the time may avoid liability by causing his or her dissent to such actions to be entered in the books containing minutes of the meetings of the board of directors at the time such action occurred or immediately after such absent director receives notice of the unlawful acts.

As permitted by the Delaware General Corporation Law, we have entered into indemnity agreements with each of our directors and executive officers, that require us to indemnify such persons against any and all expenses (including reasonable attorneys' fees), witness fees, damages, judgments, fines, settlements and other amounts incurred (including expenses of a derivative action) in connection with any action, suit or proceeding, whether actual or threatened, to which any such person may be made a party by reason of the fact that such person is or was a director, an officer or an employee of Gemphire or any of its affiliated enterprises, provided that such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to our best interests and, with respect to any criminal proceeding, had no reasonable cause to believe his or her conduct was unlawful. The indemnification agreements also set forth certain procedures that will apply in the event of a claim for indemnification thereunder.

There is at present no pending litigation or proceeding involving any of the Registrant's directors or executive officers as to which indemnification is required or permitted, and the Registrant is not aware of any threatened litigation or proceeding that may result in a claim for indemnification.

The Registrant has an insurance policy in place that covers its officers and directors with respect to certain liabilities, including liabilities arising under the Securities Act or otherwise.

The Registrant plans to enter into an underwriting agreement which provides that the underwriters are obligated, under some circumstances, to indemnify the Registrant's directors, officers and controlling persons against specified liabilities, including liabilities under the Securities Act.

Item 15. Recent Sales of Unregistered Securities.

The following sets forth information regarding all unregistered securities sold by the Registrant in the three years preceding the date of this registration statement:

1. Between March 2009 and October 2014, the Registrant borrowed an aggregate of $318,200 from, and issued promissory notes to, two of its executive officers. These promissory notes were refinanced in connection with the convertible promissory note financing discussed below. These transactions were exempt from the registration requirements of the Securities Act in reliance upon Section 4(a)(2) of the Securities Act or Regulation D promulgated under the Securities Act.

2. In November 2014, pursuant to the Plan and Agreement of Merger with Michigan Life Therapeutics, LLC, the Registrant granted 954,152 and 477,076 shares of common stock, respectively, to two of its executive officers. These transactions were exempt from the registration requirements of the Securities Act in reliance upon Section 4(a)(2) of the Securities Act or Regulation D promulgated under the Securities Act.

3. Between November 2014 and February 2015, the Registrant issued convertible promissory notes to 26 accredited investors, including the refinancing of two pre-existing promissory notes issued to two of its executive officers, for gross proceeds of approximately $2.7 million. These notes converted into an aggregate of 516,428 shares of the Registrant's Series A preferred stock in March 2015. These transactions were exempt from the registration requirements of the Securities Act in reliance upon Section 4(a)(2) of the Securities Act or Regulation D promulgated under the Securities Act.

4. Between November 2014 and February 2015, the Registrant granted stock awards for an aggregate of 1,649,575 shares of common stock to certain of its employees, consultants and directors. These transactions were exempt from the registration requirements of the Securities Act in reliance upon Section 4(a)(2) of the Securities Act or Rule 701 promulgated under the Securities Act.

5. In March 2015, the Registrant issued an aggregate of 229,210 shares of Series A preferred stock to 18 accredited investors at a per share purchase price of $6.70585 for an aggregate purchase price of approximately $1.5 million. These transactions were exempt from the registration requirements of the Securities Act in reliance upon Section 4(a)(2) of the Securities Act or Regulation D promulgated under the Securities Act.

6. In July 2015, the Registrant issued convertible promissory notes to 36 accredited investors in a private placement for gross proceeds of approximately $2.8 million. In December 2015, the Registrant issued additional convertible promissory notes to 30 accredited investors in a private placement for gross proceeds of $2.7 million. In February 2016, the Registrant issued additional convertible promissory notes to five accredited investors in a private placement for gross proceeds of $0.2 million. In April 2016, the Registrant issued additional convertible promissory notes to 22 accredited investors in a private placement for gross proceeds of $5.0 million. These transactions were exempt from the registration requirements of the Securities Act in reliance upon Section 4(a)(2) of the Securities Act or Regulation D promulgated under the Securities Act.

7. In March 2015, the Registrant issued 675,250 shares of its common stock to Pfizer Inc. pursuant to its exclusive license agreement with Pfizer Inc. This transaction was exempt from the registration requirements of the Securities Act in reliance upon Section 4(a)(2) of the Securities Act.

8. Between May 2015 and December 2015, the Registrant granted stock options under its 2015 Equity Incentive Plan (2015 Plan) to purchase an aggregate of 302,842 shares of common stock, having exercise prices ranging from $1.344 to $3.587 per share, to certain of its employees, consultants and directors. The Registrant issued a total of 2,436 shares of common stock pursuant

to the exercise of these options at an exercise price of $1.344 per share, for aggregate proceeds of approximately $3,274, through December 31, 2015. In addition, the Registrant intends to grant options to purchase an aggregate of 1,825,200 shares of common stock to its officers, directors, employees and consultants with a per share exercise price equal to the initial public offering price in connection with this offering. These transactions were exempt from the registration requirements of the Securities Act in reliance upon Section 4(a)(2) of the Securities Act or Rule 701 promulgated under the Securities Act.

The offers, sales and issuances of such stock awards and options were deemed to be exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act or Rule 701 in that the transactions were under compensatory benefit plans or contracts relating to compensation as provided under Rule 701. The recipients of such securities were employees, directors or bona fide consultants of the Registrant and received the securities under a compensatory contract or the Registrant's 2015 Plan. Appropriate legends were affixed to the securities issued in these transactions. Each of the recipients of securities in these transactions had adequate access, through employment, business or other relationships, to information about the Registrant.

None of the foregoing transactions involved any underwriters, underwriting discounts or commissions, or any general solicitation or advertising. All recipients had adequate access, through their relationships with the Registrant, to information about the Registrant. Furthermore, the Registrant affixed appropriate legends to the share certificates and instruments issued in each of the foregoing transactions setting forth that the securities had not been registered under the Securities Act and the applicable restrictions on transfer.

Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits.

EXHIBIT NUMBER	DESCRIPTION OF DOCUMENT
1.1	Form of Underwriting Agreement, including Form of Lock-Up Agreement.
3.1	Second Amended and Restated Certificate of Incorporation of the Registrant, as amended, as currently in effect.
3.2	Form of Third Amended and Restated Certificate of Incorporation of the Registrant, to be effective as of the closing of this offering.
3.3	Bylaws of the Registrant, as amended, as currently in effect.
3.4	Form of Amended and Restated Bylaws of the Registrant, to be effective immediately prior to the closing of this offering.
4.1	Form of Common Stock Certificate of the Registrant.
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.
5.1	Opinion of Honigman Miller Schwartz and Cohn LLP.
10.1*#	Form of Indemnification Agreement.
10.2*#	2015 Equity Incentive Plan and Form of Grant Notice, Stock Option Agreement and Notice of Exercise thereunder.
10.3*	Form of Amended and Restated 2015 Equity Incentive Plan, effective upon the execution and delivery of the underwriting agreement related to this offering.
10.4*	Form of 2016 Employee Stock Purchase Plan, effective upon the execution and delivery of the underwriting agreement related to this offering.
10.5*#	Employment Agreement by and between the Registrant and Mina Sooch, to be effective as of the closing of this offering.
10.6*	Employment Agreement by and between the Registrant and Jeffrey S. Mathiesen, to be effective as of the closing of this offering.
10.7*#	Employment Agreement by and between the Registrant and Charles L. Bisgaier, to be effective as of the closing of this offering.
10.8*	Form of Executive Officer Employment Agreement.
10.9+	License Agreement, dated April 16, 2011, by and between the Registrant and Pfizer Inc.
10.10#	Office Space Sublease Agreement, dated as of January 1, 2015, by and between the Registrant and Michigan Life Ventures, LLC, as amended on May 6, 2015, August 31, 2015, September 25, 2015, October 23, 2015, December 16, 2015 and March 4, 2016.
10.11	Lease Agreement, dated as of May 18, 2016 and commencing on August 1, 2016, by and between the Registrant and North Laurel Project, LLC.
10.12#	Form of Note Purchase Agreement dated July 31, 2015 as amended on December 10, 2015, March 27, 2016 and April 14, 2016.
10.13#	Form of Joinder Agreement to Note Purchase Agreement.
10.14	Fourth Amendment to Note Purchase Agreement and Convertible Promissory Notes dated April 26, 2016.

EXHIBIT NUMBER	DESCRIPTION OF DOCUMENT
10.15*	Non-Employee Director Compensation Policy.
23.1	Consent of Independent Registered Public Accounting Firm.
23.2	Consent of Honigman Miller Schwartz and Cohn LLP. Reference is made to Exhibit 5.1.
24.1	Power of Attorney. Reference is made to the signature page hereto.

* Indicates management contract or compensatory plan.

\+ 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.

\# Previously filed.

(b) Financial Statement Schedules.

No financial statement schedules are provided because the information called for is not required or is shown either in the financial statements or the notes thereto.

Item 17. Undertakings.

The undersigned Registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act 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 SEC such indemnification is against public policy as expressed in the Securities Act 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 of whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned Registrant hereby undertakes that:

(a) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(b) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus 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.

(c) For the purpose of determining liability of the Registrant under the Securities Act to any purchaser in the initial distribution of the securities, in a primary offering of securities of the undersigned Registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means

of any of the following communications, the undersigned Registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned Registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned Registrant or used or referred to by the undersigned Registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned Registrant or its securities provided by or on behalf of the undersigned Registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned Registrant to the purchaser.

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 Northville, State of Michigan, on the thirteenth day of June, 2016.

Gemphire Therapeutics Inc.

By: /s/ MINA SOOCH

Mina Sooch
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Mina Sooch and Jeffrey S. Mathiesen, and each of them, as his or her true and lawful attorneys-in-fact and agents, each with the full power of substitution, for him or her and in his or her name, place or stead, in any and all capacities, to sign any and all amendments to this registration statement (including post-effective amendments), and to sign any registration statement for the same offering covered by this registration statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act, and all post-effective amendments thereto, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

SIGNATURE	TITLE	DATE
/s/ MINA SOOCH Mina Sooch	President and Chief Executive Officer (Principal Executive Officer)	June 13, 2016
/s/ JEFFREY S. MATHIESEN Jeffrey S. Mathiesen	Chief Financial Officer (Principal Financial and Accounting Officer)	June 13, 2016
* Charles L. Bisgaier, Ph.D.	Chief Scientific Officer and Chairman of the Board of Directors	June 13, 2016
/s/ STEVE GULLANS, PH.D. Steve Gullans, Ph.D.	Member of the Board of Directors	June 13, 2016

*	Member of the Board of Directors	June 13, 2016
P. Kent Hawryluk		
*	Member of the Board of Directors	June 13, 2016
Kenneth Kousky		
*	Member of the Board of Directors	June 13, 2016
Pedro Lichtinger		
*	Member of the Board of Directors	June 13, 2016
Andrew Sassine		

* Pursuant to Power of Attorney.

By: /s/ MINA SOOCH

Mina Sooch
Attorney-in-Fact

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24.1	Power of Attorney. Reference is made to the signature page hereto.

* Indicates management contract or compensatory plan.

\+ 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.

\# Previously filed.

Exhibit 1.1

[·] Shares

Gemphire Therapeutics Inc.

UNDERWRITING AGREEMENT

June [·], 2016

JEFFERIES LLC
RBC CAPITAL MARKETS, LLC
As Representatives of the several Underwriters

c/o JEFFERIES LLC
520 Madison Avenue
New York, New York 10022

c/o RBC CAPITAL MARKETS, LLC
200 Vesey Street
New York, New York 10281

Ladies and Gentlemen:

Introductory. Gemphire Therapeutics Inc., a Delaware corporation (the "**Company**"), proposes to issue and sell to the several underwriters named in Schedule A (the "**Underwriters**") an aggregate of [·] shares of its common stock, par value $0.001 per share (the "**Shares**"). The [·] Shares to be sold by the Company are called the "**Firm Shares**." In addition, the Company has granted to the Underwriters an option to purchase up to an additional [·] Shares as provided in Section 2. The additional [·] Shares to be sold by the Company pursuant to such option are called the "**Optional Shares**." The Firm Shares and, if and to the extent such option is exercised, the Optional Shares are collectively called the "**Offered Shares**." Jefferies LLC ("**Jefferies**") and RBC Capital Markets, LLC ("**RBC**") have agreed to act as representatives of the several Underwriters (in such capacity, the "**Representatives**") in connection with the offering and sale of the Offered Shares.

The Representatives agree that up to [·] of the Firm Shares to be purchased by the Underwriters (the "**Directed Shares**") shall be reserved for sale to certain eligible directors, officers and employees of the Company and persons having business relationships with the Company (collectively, the "**Participants**"), as part of the distribution of the Offered Shares by the Underwriters (the "**Directed Share Program**") subject to the terms of this Agreement, the applicable rules, regulations and interpretations of the Financial Industry Regulatory Authority, Inc. ("**FINRA**") and all other applicable laws, rule and regulations. The Directed Share Program shall be administered by Jefferies. To the extent that the Directed Shares are not orally confirmed for purchase by the Participants by the end of the first business day after the date of this Agreement, such Directed Shares may be offered to the public by the Underwriters as part of the public offering contemplated hereby.

The Company has prepared and filed with the Securities and Exchange Commission (the "**Commission**") a registration statement on Form S-1, File No. 333-210815 that contains a form of prospectus to be used in connection with the public offering and sale of the Offered Shares. Such registration statement, as amended, including the financial statements, exhibits and schedules thereto, in the form in which it became effective under the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder (collectively, the "**Securities Act**"), including any information deemed to be a

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part thereof at the time of effectiveness pursuant to Rule 430A under the Securities Act, is called the "**Registration Statement**." Any registration statement filed by the Company pursuant to Rule 462(b) under the Securities Act in connection with the offer and sale of the Offered Shares is called the "**Rule 462(b) Registration Statement**," and from and after the date and time of filing of any such Rule 462(b) Registration Statement the term "Registration Statement" shall include the Rule 462(b) Registration Statement. The prospectus, in the form first used by the Underwriters to confirm sales of the Offered Shares or in the form first made available to the Underwriters by the Company to meet requests of purchasers pursuant to Rule 173 under the Securities Act, is called the "**Prospectus**." The preliminary prospectus dated [·], 2016 describing the Offered Shares and the offering thereof is called the "**Preliminary Prospectus**," and the Preliminary Prospectus and any other prospectus in preliminary form that describes the Offered Shares and the offering thereof and is used prior to the filing of the Prospectus is called a "**preliminary prospectus**." As used herein, "**Applicable Time**" is [·][a.m.][p.m.] (New York City time) on [·], 2016. As used herein, "**free writing prospectus**" has the meaning set forth in Rule 405 under the Securities Act, and "**Time of Sale Prospectus**" means the Preliminary Prospectus together with the free writing prospectuses, if any, identified in Schedule B hereto and the pricing information set forth on Schedule B hereto. As used herein, **"Road Show"** means a "road show" (as defined in Rule 433 under the Securities Act) relating to the offering of the Offered Shares contemplated hereby that is a "written communication" (as defined in Rule 405 under the Securities Act). As used herein, "**Section 5(d) Written Communication**" means each written communication (within the meaning of Rule 405 under the Securities Act) that is made in reliance on Section 5(d) of the Securities Act by the Company or any person authorized to act on behalf of the Company to one or more potential investors that are qualified institutional buyers ("**QIBs**") and/or institutions that are accredited investors ("**IAIs**"), as such terms are respectively defined in Rule 144A and Rule 501(a) under the Securities Act, to determine whether such investors might have an interest in the offering of the Offered Shares; "**Section 5(d) Oral Communication**" means each oral communication, if any, made in reliance on Section 5(d) of the Securities Act by the Company or any person authorized to act on behalf of the Company made to one or more QIBs and/or one or more IAIs to determine whether such investors might have an interest in the offering of the Offered Shares; "**Marketing Materials**" means any materials or information provided to investors by, or with the approval of, the Company in connection with the marketing of the offering of the Offered Shares, including any Road Show or investor presentations made to investors by the Company (whether in person or electronically); and "**Permitted Section 5(d) Communication**" means the Section 5(d) Written Communication(s) and Marketing Materials listed on Schedule C attached hereto.

All references in this Agreement to (i) the Registration Statement, any preliminary prospectus (including the Preliminary Prospectus), or the Prospectus, or any amendments or supplements to any of the foregoing, or any free writing prospectus, shall include any copy thereof filed with the Commission pursuant to its Electronic Data Gathering, Analysis and Retrieval System ("**EDGAR**") and (ii) the Prospectus shall be deemed to include any "electronic Prospectus" provided for use in connection with the offering of the Offered Shares as contemplated by Section 3(o) of this Agreement.

The Company hereby confirms its agreement with the Underwriters as follows:

Section 1. Representations and Warranties of the Company. The Company hereby represents, warrants and covenants to each Underwriter, as of the date of this Agreement, as of the First Closing Date (as hereinafter defined) and as of each Option Closing Date (as hereinafter defined), if any, as follows:

(a) ***Compliance with Registration Requirements.*** The Registration Statement has become effective under the Securities Act. The Company has complied, to the Commission's satisfaction, with all requests of the Commission for additional or supplemental information, if any. No stop order suspending the effectiveness of the Registration Statement is in effect and no proceedings for such

purpose have been instituted or are pending or, to the knowledge of the Company, are contemplated or threatened by the Commission.

(b) ***Disclosure.*** Each preliminary prospectus and the Prospectus when filed complied in all material respects with the Securities Act and, if filed by electronic transmission pursuant to EDGAR, was identical (except as may be permitted by Regulation S-T under the Securities Act) to the copy thereof delivered to the Underwriters for use in connection with the offer and sale of the Offered Shares. Each of the Registration Statement and any post-effective amendment thereto, at the time it became or becomes effective, complied and will comply in all material respects with the Securities Act and did not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. As of the Applicable Time, the Time of Sale Prospectus (including any preliminary prospectus wrapper) did not, and at the First Closing Date (as defined in Section 2) and at each applicable Option Closing Date (as defined in Section 2), will not, contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading. The Prospectus (including any Prospectus wrapper), as of its date, did not, and at the First Closing Date and at each applicable Option Closing Date, will not, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. The representations and warranties set forth in the three immediately preceding sentences do not apply to statements in or omissions from the Registration Statement or any post-effective amendment thereto, or the Prospectus or the Time of Sale Prospectus, or any amendments or supplements thereto, made in reliance upon and in conformity with written information relating to any Underwriter furnished to the Company in writing by the Representatives expressly for use therein, it being understood and agreed that the only such information consists of the information described in Section 9(b) below. There are no contracts or other documents required to be described in the Time of Sale Prospectus or the Prospectus or to be filed as an exhibit to the Registration Statement which have not been described or filed as required.

(c) ***Free Writing Prospectuses; Road Show.*** As of the determination date referenced in Rule 164(h) under the Securities Act, the Company was not, is not or will not be (as applicable) an "ineligible issuer" in connection with the offering of the Offered Shares pursuant to Rules 164, 405 and 433 under the Securities Act. Each free writing prospectus that the Company is required to file pursuant to Rule 433(d) under the Securities Act has been, or will be, filed with the Commission in accordance with the requirements of the Securities Act. Each free writing prospectus that the Company has filed, or is required to file, pursuant to Rule 433(d) under the Securities Act or that was prepared by or on behalf of or used or referred to by the Company complies or will comply in all material respects with the requirements of Rule 433 under the Securities Act, including timely filing with the Commission or retention where required and legending, and each such free writing prospectus, as of its issue date and at all subsequent times through the completion of the public offer and sale of the Offered Shares did not, does not and will not include any information that conflicted, conflicts or will conflict with the information contained in the Registration Statement, the Prospectus or any preliminary prospectus and not superseded or modified. Except for the free writing prospectuses, if any, identified in Schedule B, and electronic Road Show, if any, furnished to you before first use, the Company has not prepared, used or referred to, and will not, without your prior written consent, prepare, use or refer to, any free writing prospectus. Each Road Show, when considered together with the Time of Sale Prospectus, did not, as of the Applicable Time, contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading.

(d) ***Directed Share Program.*** (i) The Registration Statement, the Prospectus, the Time of Sale Prospectus and any preliminary prospectus comply, and any further amendments or supplements

thereto will comply, with any applicable laws or regulations of foreign jurisdictions in which the Prospectus, Time of Sale Prospectus or any preliminary prospectus, as amended or supplemented, if applicable, are distributed in connection with the Directed Share Program, and (ii) no authorization, approval, consent, license, order, registration or qualification of or with any government, governmental instrumentality or court, other than such as have been obtained, is necessary under the securities laws and regulations of foreign jurisdictions in which the Directed Shares are offered outside the United States. The Company has not offered, or caused the Underwriters to offer, any Directed Shares to any person pursuant to the Directed Share Program with the intent to unlawfully influence (i) a customer or supplier of the Company to alter the customer's or supplier's level or type of business with the Company or (ii) a trade journalist or publication to write or publish favorable information about the Company or its products.

(e) ***Distribution of Offering Material By the Company.*** Prior to the later of (i) the expiration or termination of the option granted to the several Underwriters in Section 2, (ii) the completion of the Underwriters' distribution of the Offered Shares and (iii) the expiration of 25 days after the date of the Prospectus, the Company has not distributed and will not distribute any offering material in connection with the offering and sale of the Offered Shares other than the Registration Statement, the Time of Sale Prospectus, the Prospectus, the free writing prospectuses, if any, identified on Schedule B hereto or any free writing prospectus reviewed and consented to by the Representatives and any Permitted Section 5(d) Communications.

(f) ***The Underwriting Agreement.*** This Agreement has been duly authorized, executed and delivered by the Company.

(g) ***Authorization of the Offered Shares.*** The Offered Shares have been duly authorized for issuance and sale pursuant to this Agreement and, when issued and delivered by the Company against payment therefor pursuant to this Agreement, will be validly issued, fully paid and nonassessable, and the issuance and sale of the Offered Shares is not subject to any preemptive rights, rights of first refusal or other similar rights to subscribe for or purchase the Offered Shares, except for such rights as have been duly waived.

(h) ***No Applicable Registration or Other Similar Rights.*** There are no persons with registration or other similar rights to have any equity or debt securities registered for sale under the Registration Statement or included in the offering contemplated by this Agreement, except for such rights as have been duly waived.

(i) ***No Material Adverse Change*****.** Except as otherwise disclosed in the Registration Statement, the Time of Sale Prospectus and the Prospectus, subsequent to the respective dates as of which information is given in the Registration Statement, the Time of Sale Prospectus and the Prospectus: (i) there has been no material adverse change, or any development that would reasonably be expected to result in a material adverse change, in the condition, financial or otherwise, or in the earnings, business, properties, operations, assets, liabilities or prospects, whether or not arising from transactions in the ordinary course of business, of the Company (any such change being referred to herein as a "**Material Adverse Change**"); (ii) the Company has not incurred any material liability or obligation, indirect, direct or contingent, including without limitation any losses or interference with its business from fire, explosion, flood, earthquakes, accident or other calamity, whether or not covered by insurance, or from any strike, labor dispute or court or governmental action, order or decree, that are material, individually or in the aggregate, to the Company or has entered into any transactions not in the ordinary course of business; and (iii) there has not been any material decrease in the capital stock or any material increase in any short-term or long-term indebtedness of the Company and there has been no

dividend or distribution of any kind declared, paid or made by the Company or any repurchase or redemption by the Company of any class of capital stock.

(j) ***Independent Accountants*****.** Ernst & Young LLP, which has expressed its opinion with respect to the financial statements (which term as used in this Agreement includes the related notes thereto) filed with the Commission as a part of the Registration Statement, the Time of Sale Prospectus and the Prospectus, is (i) an independent registered public accounting firm as required by the Securities Act and the rules of the Public Company Accounting Oversight Board ("**PCAOB**"), (ii) in material compliance with the applicable requirements relating to the qualification of accountants under Rule 2-01 of Regulation S-X under the Securities Act and (iii) a registered public accounting firm as defined by the PCAOB whose registration has not been suspended or revoked and who has not requested such registration to be withdrawn.

(k) ***Financial Statements*****.** The financial statements filed with the Commission as a part of the Registration Statement, the Time of Sale Prospectus and the Prospectus present fairly the financial position of the Company as of the dates indicated and the results of their operations, changes in stockholders' equity and cash flows for the periods specified. Such financial statements have been prepared in conformity with generally accepted accounting principles as applied in the United States applied on a consistent basis throughout the periods involved, except as may be expressly stated in the related notes thereto. No other financial statements or supporting schedules are required to be included in the Registration Statement, the Time of Sale Prospectus or the Prospectus. The financial data set forth in each of the Registration Statement, the Time of Sale Prospectus and the Prospectus under the captions "Prospectus Summary—Summary Financial Data," "Selected Financial Data" and "Capitalization" fairly present, in all material respects, the information set forth therein on a basis consistent with that of the audited financial statements contained in the Registration Statement, the Time of Sale Prospectus and the Prospectus. Any disclosures contained in the Registration Statement, any preliminary prospectus or the Prospectus and any free writing prospectus, that constitute non-GAAP financial measures (as defined by the rules and regulations under the Securities Act and the Exchange Act of 1934, as amended (the "**Exchange Act**")) comply with Regulation G under the Exchange Act and Item 10 of Regulation S-K under the Securities Act, as applicable. To the Company's knowledge, no person who has been suspended or barred from being associated with a registered public accounting firm, or who has failed to comply with any sanction pursuant to Rule 5300 promulgated by the PCAOB, has participated in or otherwise aided the preparation of, or audited, the financial statements, supporting schedules or other financial data filed with the Commission as a part of the Registration Statement, the Time of Sale Prospectus and the Prospectus.

(l) ***Company's Accounting System*****.** The Company makes and keeps accurate books and records 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 authorization; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles as applied in the United States and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

(m) ***Disclosure Controls and Procedures; Deficiencies in or Changes to Internal Control Over Financial Reporting*****.** The Company has established and maintains disclosure controls and procedures (as defined in Rules 13a-15 and 15d-15 under the Exchange Act), which (i) are designed to ensure that material information relating to the Company, is made known to the Company's principal executive officer and its principal financial officer by others within those entities and (ii) are effective in all material respects to perform the functions for which they were established. Since the end of the

Company's most recent audited fiscal year, there have been no significant deficiencies or material weakness in the Company's internal control over financial reporting (whether or not remediated) and no change in the Company's internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting. The Company is not aware of any change in its internal control over financial reporting that has occurred during its most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

(n) ***Incorporation and Good Standing of the Company*****.** The Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the jurisdiction of its incorporation and has the corporate power and authority to own, lease and operate its properties and to conduct its business as described in the Registration Statement, the Time of Sale Prospectus and the Prospectus and to enter into and perform its obligations under this Agreement. The Company is duly qualified as a foreign corporation to transact business and is in good standing in the State of Michigan and each other jurisdiction in which such qualification is required, whether by reason of the ownership or leasing of property or the conduct of business, except where the failure to so qualify or to be in good standing would not reasonably be expected, individually or in the aggregate, to have a material adverse effect on the condition (financial or other), earnings, business, properties, operations, assets, liabilities or prospects of the Company (a "**Material Adverse Effect**").

(o) ***Subsidiaries*****.** The Company does not own or control, directly or indirectly, any corporation, association or other entity.

(p) ***Capitalization and Other Capital Stock Matters*****.** The authorized, issued and outstanding capital stock of the Company is as set forth in the Registration Statement, the Time of Sale Prospectus and the Prospectus under the caption "Capitalization" (other than for subsequent issuances, if any, pursuant to employee benefit plans, upon the exercise of outstanding options, or as otherwise described in the Registration Statement, the Time of Sale Prospectus and the Prospectus). The Shares (including the Offered Shares) conform in all material respects to the description thereof contained in the Time of Sale Prospectus. All of the issued and outstanding Shares have been duly authorized and validly issued, are fully paid and nonassessable and have been issued in compliance with all federal and state securities laws, except where such noncompliance would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect. None of the outstanding Shares was issued in violation of any preemptive rights, rights of first refusal or other similar rights to subscribe for or purchase securities of the Company. There are no authorized or outstanding options, warrants, preemptive rights, rights of first refusal or other rights to

purchase, or equity or debt securities convertible into or exchangeable or exercisable for, any capital stock of the Company other than those described in the Registration Statement, the Time of Sale Prospectus and the Prospectus. The descriptions of the Company's stock option and other stock plans or arrangements, and the options or other rights granted thereunder, set forth in the Registration Statement, the Time of Sale Prospectus and the Prospectus accurately and fairly presents in all material respects the information required to be shown with respect to such plans, arrangements, options and rights.

(q) ***Stock Exchange Listing*****.** The Offered Shares have been approved for listing on The NASDAQ Global Market (the "***NASDAQ***"), subject only to official notice of issuance.

(r) ***Non-Contravention of Existing Instruments; No Further Authorizations or Approvals Required.*** The Company is not in violation of its charter or by-laws, or is in default (or, with the giving of notice or lapse of time, would be in default) ("**Default**") under any indenture, loan, credit agreement, note, lease, license agreement, contract, franchise or other instrument (including, without limitation, any pledge agreement, security agreement, mortgage or other instrument or agreement evidencing,

guaranteeing, securing or relating to indebtedness) to which the Company is a party or by which it may be bound, or to which any of its properties or assets are subject (each, an "**Existing Instrument**"), except for such Defaults as would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect. The Company's execution, delivery and performance of this Agreement, consummation of the transactions contemplated hereby and by the Registration Statement, the Time of Sale Prospectus and the Prospectus and the issuance and sale of the Offered Shares (i) have been duly authorized by all necessary corporate action and will not result in any violation of the provisions of the charter or by-laws of the Company (ii) will not conflict with or constitute a breach of, or Default or a Debt Repayment Triggering Event (as defined below) under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company pursuant to, or require the consent of any other party to, any Existing Instrument and (iii) will not result in any violation of any law, administrative regulation or administrative or court decree applicable to the Company, except for such conflicts, breaches, Defaults, Debt Repayment Triggering Events, liens, charges, encumbrances or violations that would not reasonably be expected, individually or in the aggregate, to result in a Material Adverse Effect. To the Company's knowledge, no consent, approval, authorization or other order of, or registration or filing with, any court or other governmental or regulatory authority or agency, is required for the Company's execution, delivery and performance of this Agreement and consummation of the transactions contemplated hereby and by the Registration Statement, the Time of Sale Prospectus and the Prospectus, except (A) such as have been obtained or made by the Company and are in full force and effect under the Securities Act and such as may be required under applicable state securities or blue sky laws, FINRA or NASDAQ and (B) such as have been obtained under the laws and regulations of jurisdictions outside the United States in which Directed Shares are offered. As used herein, a "**Debt Repayment Triggering Event**" means any event or condition which gives, or with the giving of notice or lapse of time would give, the holder of any note, debenture or other evidence of indebtedness (or any person acting on such holder's behalf) the right to require the repurchase, redemption or repayment of all or a portion of such indebtedness by the Company.

(s) ***Compliance with Laws.*** The Company has been and is in compliance with all applicable laws, rules and regulations, except where failure to be so in compliance would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect.

(t) ***No Material Actions or Proceedings*****.** There is no action, suit, proceeding, inquiry or investigation brought by or before any governmental entity now pending or, to the knowledge of the Company, threatened, against or affecting the Company, which would reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect or materially and adversely affect the consummation of the transactions contemplated by this Agreement or the performance by the Company of its obligations hereunder; and the aggregate of all pending legal or governmental proceedings to which the Company is a party or of which any of its properties or assets is the subject, including ordinary routine litigation incidental to the business, if determined adversely to the Company, would not reasonably be expected to have a Material Adverse Effect. No material labor dispute with the employees of the Company, or with the employees of any principal supplier, manufacturer, customer or contractor of the Company, exists or, to the knowledge of the Company, is threatened or imminent.

(u) ***Intellectual Property Rights*****.** The Company owns, or has obtained valid and enforceable licenses for, the inventions, patent applications, patents, trademarks, trade names, service names, copyrights, trade secrets and other intellectual property described in the Registration Statement, the Time of Sale Prospectus and the Prospectus as being owned or licensed by them and that are necessary for the conduct of its business as currently conducted or as currently proposed to be conducted (collectively, "**Intellectual Property**"). To the Company's knowledge, except as described in the Registration Statement, the Time of Sale Prospectus and the Prospectus: (i) there are no third parties who have rights to any Intellectual Property, except for customary reversionary rights of third-party licensors with

respect to Intellectual Property that is disclosed in the Registration Statement, the Time of Sale Prospectus and the Prospectus as licensed to the Company; and (ii) there is no infringement by third parties of any Intellectual Property. There is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others: (A) challenging the Company's rights in or to any Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim; (B) challenging the validity, enforceability or scope of any Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim; or (C) asserting that the Company infringes or otherwise violates, or would, upon the commercialization of any product or service described in the Registration Statement, the Time of Sale Prospectus or the Prospectus as under development, infringe or violate, any patent, trademark, trade name, service name, copyright, trade secret or other proprietary rights of others, and the Company is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim. The Company has complied with the terms of each agreement pursuant to which Intellectual Property has been licensed to the Company except where the failure to comply would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect, and all such agreements are in full force and effect. The product candidates described in the Registration Statement, the Time of Sale Prospectus and the Prospectus as under development by the Company fall within the scope of the claims of one or more patents or patent applications owned by, or exclusively licensed to, the Company.

(v) ***All Necessary Permits, etc*****.** The Company possesses such valid and current certificates, authorizations or permits required by state, federal or foreign regulatory agencies or bodies to conduct its business as currently conducted and as described in the Registration Statement, the Time of Sale Prospectus or the Prospectus ("**Permits**"), except where the failure to so possess or comply would not reasonably be expected, individually or in the aggregate, to result in a Material Adverse Effect. The Company is not in violation of, or in default under, any of the Permits and has not received any notice of proceedings relating to the revocation or modification of, or non-compliance with, any such certificate, authorization or permit, except where such violation, default, revocation, modification or non-compliance would not reasonably be expected, individually or in the aggregate, to result in a Material Adverse Effect.

(w) ***Title to Properties.*** The Company has good and marketable title to all of the real and personal property and other assets reflected as owned in the financial statements referred to in Section 1(k) above (or elsewhere in the Registration Statement, the Time of Sale Prospectus or the Prospectus), in each case free and clear of any security interests, mortgages, liens, encumbrances, equities, adverse claims and other defects, except as would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect. The real property, improvements, equipment and personal property held under lease by the Company are held under valid and enforceable leases, with such exceptions as are not material and do not materially interfere with the use made or proposed to be made of such real property, improvements, equipment or personal property by the Company.

(x) ***Tax Law Compliance.*** The Company has filed all necessary federal, state and foreign income and franchise tax returns or has properly requested extensions thereof and has paid all taxes required to be paid by it and, if due and payable, any related or similar assessment, fine or penalty levied against it except as may be being contested in good faith and by appropriate proceedings. The Company has made adequate charges, accruals and reserves in the applicable financial statements referred to in Section 1(k) above in respect of all federal, state and foreign income and franchise taxes for all periods as to which the tax liability of the Company has not been finally determined.

(y) ***Insurance.*** The Company is insured by recognized, financially sound and reputable institutions with policies in such amounts and with such deductibles and covering such risks as are

generally deemed adequate and customary for their businesses including, but not limited to, policies covering real and personal property owned or leased by the Company against theft, damage, destruction, acts of vandalism and earthquakes and policies covering the Company for product liability claims and clinical trial liability claims. The Company has no reason to believe that it will not be able (i) to renew its existing insurance coverage as and when such policies expire or (ii) to obtain comparable coverage from similar institutions as may be necessary or appropriate to conduct its business as now conducted and at a cost that would not reasonably be expected to have a Material Adverse Effect. The Company has not been denied any insurance coverage which it has sought or for which it has applied.

(z) ***Compliance with Environmental Laws.*** Except as would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect: (i) the Company is not in violation of any federal, state, local or foreign statute, law, rule, regulation, ordinance, code, policy or rule of common law or any judicial or administrative interpretation thereof, including any judicial or administrative order, consent, decree or judgment, relating to pollution or protection of human health, the environment (including, without limitation, ambient air, surface water, groundwater, land surface or subsurface strata) or wildlife, including, without limitation, laws and regulations relating to the release or threatened release of chemicals, pollutants, contaminants, wastes, toxic substances, hazardous substances, petroleum or petroleum products (collectively, "**Hazardous Materials**") or to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Hazardous Materials (collectively, "**Environmental Laws**"); (ii) the Company has all permits, authorizations and approvals required under any applicable Environmental Laws and is in compliance with their requirements; (iii) there are no pending or, to the Company's knowledge, threatened administrative, regulatory or judicial actions, suits, demands, demand letters, claims, liens, notices of noncompliance or violation, investigation or proceedings relating to any Environmental Law against the Company; and (iv) to the Company's knowledge, there are no events or circumstances that would reasonably be expected to form the basis of an order for clean-up or remediation, or an action, suit or proceeding by any private party or governmental body or agency, against or affecting the Company relating to Hazardous Materials or any Environmental Laws.

(aa) ***ERISA Compliance.*** The Company and any "employee benefit plan" (as defined under the Employee Retirement Income Security Act of 1974, as amended, and the regulations and published interpretations thereunder (collectively, "**ERISA**")) established or maintained by the Company or its "ERISA Affiliates" (as defined below) are in compliance in all material respects with ERISA. "**ERISA Affiliate**" means, with respect to the Company, any member of any group of organizations described in Sections 414(b), (c), (m) or (o) of the Internal Revenue Code of 1986, as amended, and the regulations and published interpretations thereunder (the "**Code**") of which the Company is a member. No "reportable event" (as defined under ERISA) has occurred or is reasonably expected to occur with respect to any "employee benefit plan" established or maintained by the Company or its ERISA Affiliates. No "employee benefit plan" established or maintained by the Company or any of its ERISA Affiliates, if such "employee benefit plan" were terminated, would have any "amount of unfunded benefit liabilities" (as defined under ERISA). Neither the Company nor any of its ERISA Affiliates has incurred or reasonably expects to incur any liability under (i) Title IV of ERISA with respect to termination of, or withdrawal from, any "employee benefit plan" or (ii) Sections 412, 4971, 4975 or 4980B of the Code. Each employee benefit plan established or maintained by the Company or any of its ERISA Affiliates that is intended to be qualified under Section 401(a) of the Code is so qualified and nothing has occurred, whether by action or failure to act, which would cause the loss of such qualification.

(bb) ***Company Not an "Investment Company."*** The Company is not, and will not be, either after receipt of payment for the Offered Shares or after the application of the proceeds therefrom as described under "Use of Proceeds" in the Registration Statement, the Time of Sale Prospectus or the

Prospectus, required to register as an "investment company" under the Investment Company Act of 1940, as amended (the **"Investment Company Act")**.

(cc) ***No Price Stabilization or Manipulation; Compliance with Regulation M.*** The Company has not taken, directly or indirectly, any action designed to or that would reasonably be expected to cause or result in stabilization or manipulation of the price of the Shares or of any "reference security" (as defined in Rule 100 of Regulation M under the Exchange Act (**"Regulation M"**)) with respect to the Shares, whether to facilitate the sale or resale of the Offered Shares or otherwise, and has taken no action which would directly or indirectly violate Regulation M.

(dd) ***Related-Party Transactions.*** There are no business relationships or related-party transactions involving the Company or any other person required to be described in the Registration Statement, the Time of Sale Prospectus or the Prospectus that have not been described as required.

(ee) ***FINRA Matters.*** All of the information provided to the Underwriters or to counsel for the Underwriters by the Company, its counsel, its officers and directors and, to the knowledge of the Company, the holders of any securities (debt or equity) or options to acquire any securities of the Company in connection with the offering of the Offered Shares is true, complete, correct and compliant in all material respects with FINRA's rules and any letters, filings or other supplemental information provided to FINRA by the Company, its counsel, its officers and directors and, to the knowledge of the Company, the holders of any securities or options to acquire any securities of the Company pursuant to FINRA Rules or NASD Conduct Rules is true, complete and correct in all material respects.

(ff) ***Parties to Lock-Up Agreements.*** The Company has furnished to the Underwriters a letter agreement in the form attached hereto as Exhibit A (the "**Lock-up Agreement**") from each director and officer and substantially all beneficial owners (as defined according to Rule 13d-3 under the Exchange Act)

of any outstanding issued share capital of the Company. If any additional persons shall become directors or officers of the Company prior to the end of the Company Lock-up Period (as defined below), the Company shall cause each such person, prior to or contemporaneously with their appointment or election as a director or officer of the Company, to execute and deliver to the Representatives a Lock-up Agreement.

(gg) ***Statistical and Market-Related Data.*** All statistical, demographic and market-related data included in the Registration Statement, the Time of Sale Prospectus or the Prospectus are based on or derived from sources that the Company believes, after reasonable inquiry, to be reliable and accurate in all material respects. To the extent required, the Company has obtained the written consent to the use of such data from such sources.

(hh) ***No Unlawful Contributions or Other Payments.*** Neither the Company nor, to the Company's knowledge, any employee or agent of the Company, has made any contribution or other payment to any official of, or candidate for, any federal, state or foreign office in violation of any applicable law or of the character required to be disclosed in the Registration Statement, the Time of Sale Prospectus or the Prospectus.

(ii) ***Foreign Corrupt Practices Act.*** Neither the Company nor any director, officer or employee of the Company nor, to the knowledge of the Company, any agent, affiliate or other person associated with or acting on behalf of the Company has, in the course of its actions for, or on behalf of, the Company (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expenses relating to political activity; (ii) made or taken any act in furtherance of an offer, promise or authorization of any direct or indirect unlawful payment to any domestic government or regulatory official, "foreign official" (as defined in the U.S. Foreign Corrupt Practices Act of 1977, as

amended, and the rules and regulations thereunder (collectively, the "**FCPA**") or employee, including of any government-owned or controlled entity (such as a state-affiliated hospital, research lab, or university) or of a public international organization, or any person acting in an official capacity for or on behalf of any of the foregoing, or any political party or party official or candidate for political office; (iii) violated or is in violation of any provision of the FCPA, or any applicable law or regulation implementing the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions, or committed an offence under the Bribery Act 2010 of the United Kingdom, or any other applicable non-U.S. anti-bribery or anti-corruption statute or regulation; or (iv) made, offered, agreed, requested or taken an act in furtherance of any unlawful bribe, rebate, payoff, influence payment, kickback or other unlawful payment or benefit to any domestic government official, such foreign official or employee; and the Company and, to the knowledge of the Company, the Company's affiliates have conducted their respective businesses in compliance with the FCPA and have instituted, maintain and enforce, and will continue to maintain and enforce, policies and procedures designed to ensure, and which are reasonably expected to continue to ensure, continued compliance therewith.

(jj) ***Money Laundering Laws.*** The operations of the Company are, and have been conducted at all times, in compliance with applicable financial recordkeeping and reporting requirements, including those of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all applicable jurisdictions, the rules and regulations thereunder and any related or similar applicable rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the "**Money Laundering Laws**") and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(kk) ***Sanctions Laws.*** Neither the Company nor any director, officer or employee of the Company nor, to the knowledge of the Company, after due inquiry, any agent, affiliate or other person associated with or acting on behalf of the Company is currently subject to or the target of any U.S. sanctions administered by the U.S. Government (including, without limitation, the Office of Foreign Assets Control of the U.S. Department of the Treasury or the U.S. Department of State and including, without limitation, the designation as a "specially designated national" or "blocked person"), the United Nations Security Council, the European Union, Her Majesty's Treasury or other relevant sanctions authority (collectively, "**Sanctions**"), nor is the Company located, organized or resident in a country or territory that is subject to or the target of Sanctions, including, without limitation, Crimea, Cuba, Iran, North Korea, Sudan and Syria (each, a "**Sanctioned Country**"); and the Company will not directly or indirectly use the proceeds of this offering, or lend, contribute or otherwise make available such proceeds to any joint venture partner or other person or entity, for the purpose of (i) financing or facilitating the activities of or business with any person that currently is subject to or the target of any Sanctions, (ii) financing or facilitating any activities of or business in any Sanctioned Country or (iii) or in any other manner that will result in a violation by any person (including any person participating in the transaction whether as underwriter, advisor, investor or otherwise) of Sanctions. For the past five years, the Company has not knowingly engaged in, is not now knowingly engaged in, and will not engage in, any dealings or transactions with any person that at the time of the dealing or transaction is or was subject to or the target of Sanctions or with any Sanctioned Country.

(ll) ***Brokers.*** Except pursuant to this Agreement, there is no broker, finder or other party that is entitled to receive from the Company any brokerage or finder's fee or other fee or commission as a result of any transactions contemplated by this Agreement.

(mm) ***Forward-Looking Statements.*** Each financial or operational projection or other "forward-looking statement" (as defined by Section 27A of the Securities Act or Section 21E of the Exchange Act) contained in the Registration Statement, the Time of Sale Prospectus or the Prospectus (i) was so

included by the Company in good faith and with reasonable basis after due consideration by the Company of the underlying assumptions, estimates and other applicable facts and circumstances and (ii) is accompanied by meaningful cautionary statements identifying those factors that could cause actual results to differ materially from those in such forward-looking statement. No such statement was made with the knowledge of an executive officer or director of the Company that it was false or misleading.

(nn) ***No Outstanding Loans or Other Extensions of Credit.*** The Company does not have any outstanding extension of credit, in the form of a personal loan, to or for any director or executive officer (or equivalent thereof) of the Company except for such extensions of credit as are expressly permitted by Section 13(k) of the Exchange Act.

(oo) ***Emerging Growth Company Status.*** From the time of initial confidential submission of the Registration Statement to the Commission (or, if earlier, the first date on which the Company engaged in any Section 5(d) Written Communication or any Section 5(d) Oral Communication) through the date hereof, the Company has been and is an "emerging growth company," as defined in Section 2(a) of the Securities Act (an "**Emerging Growth Company**").

(pp) ***Communications.*** The Company (i) has not alone engaged in communications with potential investors in reliance on Section 5(d) of the Securities Act other than Permitted Section 5(d) Communications with the consent of the Representatives with entities that are QIBs or IAIs and (ii) has not authorized anyone other than the Representatives, or any other representative of the Underwriters identified in an authorization letter that authorizes a

Representative, to engage in such communications; the Company reconfirms that the Representatives have been authorized to act on its behalf in undertaking Marketing Materials, Section 5(d) Oral Communications and Section 5(d) Written Communications; as of the Applicable Time, each Permitted Section 5(d) Communication, when considered together with the Time of Sale Prospectus, did not, as of the Applicable Time, include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading; and each Permitted Section 5(d) Communication, if any, does not, as of the date hereof, conflict with the information contained in the Registration Statement, the Preliminary Prospectus and the Prospectus; and the Company has filed publicly on EDGAR at least 21 calendar days prior to any "road show" (as defined in Rule 433 under the Act), any confidentially submitted registration statement and registration statement amendments relating to the offer and sale of the Offered Shares.

(qq) ***Clinical Data and Regulatory Compliance.*** The preclinical tests, clinical trials and other studies (collectively, "studies") that are described in, or the results of which are referred to in, the Registration Statement, the Time of Sale Prospectus or the Prospectus were conducted in all material respects in accordance with the protocols, procedures and controls designed and approved for such studies and with standard medical and scientific research procedures; each description of the results of such studies is accurate and complete in all material respects and fairly presents the data derived from such studies, and the Company has no knowledge of any other studies the results of which are inconsistent with, or otherwise call into question, the results described or referred to in the Registration Statement, the Time of Sale Prospectuses or the Prospectus; the Company has made all such filings and obtained all such approvals as may be required by the Food and Drug Administration of the U.S. Department of Health and Human Services or any committee thereof or from any other U.S. or foreign government or drug regulatory agency, or health care facility Institutional Review Board (collectively, the "**Regulatory Agencies**") except where such failure or non-compliance would not reasonably be expected, individually or in the aggregate, to result in a Material Adverse Event; the Company has not received any notice of, or correspondence from, any Regulatory Agency requiring the termination, suspension or modification of any clinical trials that are described or referred to in the Registration Statement, the Time of Sale Prospectus or the Prospectus; and the Company has operated and currently

is in compliance in all material respects with all applicable rules, regulations and policies of the Regulatory Agencies.

(rr) ***Compliance with Health Care Laws.*** The Company is, and at all times has been, in compliance with all Health Care Laws, except for any noncompliance that would not reasonably be expected to have a Material Adverse Effect. For purposes of this Agreement, "**Health Care Laws**" means: (i) the Federal Food, Drug, and Cosmetic Act and the regulations promulgated thereunder; (ii) all applicable federal, state, local and all applicable foreign health care related fraud and abuse laws, including, without limitation, the U.S. Anti-Kickback Statute (42 U.S.C. Section 1320a-7b(b)), the Anti-Inducement Law (42 U.S.C. § 1320a-7a(a)(5)), the U.S. Civil False Claims Act (31 U.S.C. Section 3729 et seq.), all applicable federal, state, local and all foreign criminal laws relating to health care fraud and abuse, including but not limited to 18 U.S.C. Sections 286 and 287, and the health care fraud criminal provisions under the U.S. Health Insurance Portability and Accountability Act of 1996 ("**HIPAA**") (42 U.S.C. Section 1320d et seq.), the exclusion laws, the statutes, regulations and directives of applicable government funded or sponsored healthcare programs, and the regulations promulgated pursuant to such statutes; (iii) the Standards for Privacy of Individually Identifiable Health Information (the "**Privacy Rule**"), the Security Standards, and the Standards for Electronic Transactions and Code Sets promulgated under HIPAA, the Health Information Technology for Economic and Clinical Health Act (42 U.S.C. Section 17921 et seq.), and the regulations promulgated thereunder and any state or non-U.S. counterpart thereof or other law or regulation the purpose of which is to protect the privacy of individuals or prescribers; (iv) the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Affordability Reconciliation Act of 2010, the regulations promulgated thereunder; (v) the U.S. Controlled Substances Act (21 U.S.C. Section 801 et seq.); (vi) quality, safety and accreditation requirements under applicable federal, state, local or foreign laws or regulatory bodies; and (vii) all other local, state, federal, national, supranational and foreign laws, relating to the regulation of the Company. The Company has not received written notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any court or arbitrator or governmental or regulatory authority or third party alleging that any product operation or activity is in material violation of any Health Care Laws nor, to the Company's knowledge, is any such claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action threatened. Except as would not reasonably be expected, individually or in the aggregate, to result in a Material Adverse Event, the Company has filed, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Health Care Laws, and all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and accurate on the date filed in all material respects (or were corrected or supplemented by a subsequent submission). The Company is not a party to any corporate integrity agreements, monitoring agreements, consent decrees, settlement orders, or similar agreements with or imposed by any governmental or regulatory authority. Additionally, neither the Company nor any of its employees, officers or directors has been excluded, suspended or debarred from participation in any U.S. federal health care program or human clinical research or, to the knowledge of the Company, is subject to a governmental inquiry, investigation, proceeding, or other similar action that could reasonably be expected to result in debarment, suspension, or exclusion.

(ss) ***No Contract Terminations.*** The Company has not sent or received any communication regarding termination of, or intent not to renew, any of the contracts or agreements referred to or described in any preliminary prospectus, the Prospectus or any free writing prospectus, or referred to or described in, or filed as an exhibit to, the Registration Statement, and no such termination or non-renewal has been threatened by the Company or, to the Company's knowledge, any other party to any such contract or agreement, which threat of termination or non-renewal has not been rescinded as of the date hereof.

Any certificate signed by any officer of the Company and delivered to any Underwriter or to counsel for the Underwriters in connection with the offering, or the purchase and sale, of the Offered Shares shall be deemed a representation and warranty by the Company to each Underwriter as to the matters covered thereby.

The Company has a reasonable basis for making each of the representations set forth in this Section 1. The Company acknowledges that the Underwriters and, for purposes of the opinions to be delivered pursuant to Section 6 hereof, counsel to the Company and counsel to the Underwriters, will rely upon the accuracy and truthfulness of the foregoing representations and hereby consents to such reliance.

Section 2. Purchase, Sale and Delivery of the Offered Shares.

(a) ***The Firm Shares.*** Upon the terms herein set forth, the Company agrees to issue and sell to the several Underwriters an aggregate of [·] Firm Shares. On the basis of the representations, warranties and agreements herein contained, and upon the terms but subject to the conditions herein set forth, the Underwriters agree, severally and not jointly, to purchase from the Company the respective number of Firm Shares set forth opposite their names on Schedule A. The purchase price per Firm Share to be paid by the several Underwriters to the Company shall be $[·] per share.

(b) ***The First Closing Date.*** Delivery of the Firm Shares to be purchased by the Underwriters and payment therefor shall be made at the offices of Cooley LLP, 1114 Avenue of the Americas, New York, NY 10036 (or such other place as may be agreed to by the Company and the Representatives) at 9:00 a.m. New York City time, on [·], 2016, or such other time and date not later than 1:30 p.m. New York City time, on [·], 2016 as the Representatives shall designate by notice to the Company (the time and date of such closing are called the "**First Closing Date**"). The Company hereby acknowledges that circumstances under which the Representatives may provide notice to postpone the First Closing Date as originally scheduled include, but are not limited to, any determination by the Company or the Representatives to recirculate to the public copies of an amended or supplemented Prospectus or a delay as contemplated by the provisions of Section 11.

(c) ***The Optional Shares; Option Closing Date.*** In addition, on the basis of the representations, warranties and agreements herein contained, and upon the terms but subject to the conditions herein set forth, the Company hereby grants an option to the several Underwriters to purchase, severally and not jointly, up to an aggregate of [·] Optional Shares from the Company at the purchase price per share to be paid by the Underwriters for the Firm Shares. The option granted hereunder may be exercised at any time and from time to time in whole or in part upon written notice by the Representatives to the Company, which notice may be given at any time within 30 days from the date of this Agreement. Such notice shall set forth (i) the aggregate number of Optional Shares as to which the Underwriters are exercising the option and (ii) the time, date and place at which the Optional Shares will be delivered (which time and date may be simultaneous with, but not earlier than, the First Closing Date; and in the event that such time and date are simultaneous with the First Closing Date, the term "**First Closing Date**" shall refer to the time and date of delivery of the Firm Shares and such Optional Shares). Any such time and date of delivery, if subsequent to the First Closing Date, is called an "**Option Closing Date**," shall be determined by the Representatives and shall not be earlier than three or later than five full business days after delivery of such notice of exercise. If any Optional Shares are to be purchased, each Underwriter agrees, severally and not jointly, to purchase the number of Optional Shares (subject to such adjustments to eliminate fractional shares as the Representatives may determine) that bears the same proportion to the total number of Optional Shares to be purchased as the number of Firm Shares set forth on Schedule A opposite the name of such Underwriter bears to the total number of Firm Shares. The Representatives may cancel the option at any time prior to its expiration by giving written notice of such cancellation to the Company.

(d) ***Public Offering of the Offered Shares.*** The Representatives hereby advise the Company that the Underwriters intend to offer for sale to the public, initially on the terms set forth in the Registration Statement, the Time of Sale Prospectus and the Prospectus, their respective portions of the Offered Shares as soon after this Agreement has been executed and the Registration Statement has been declared effective as the Representatives, in their sole judgment, have determined is advisable and practicable.

(e) ***Payment for the Offered Shares.***

(i) Payment for the Firm Shares to be sold by the Company shall be made at the First Closing Date (and, if applicable, payment for the Optional Shares at the First Closing Date or each Option Closing Date, as applicable) by wire transfer of immediately available funds to the order of the Company.

(ii) It is understood that the Representatives have been authorized, for their own account and the accounts of the several Underwriters, to accept delivery of and receipt for, and make payment of the purchase price for, the Firm Shares and any Optional Shares the Underwriters have agreed to purchase. Each of Jefferies and RBC, individually and not as the Representatives of the Underwriters, may (but shall not be obligated to) make payment for any Offered Shares to be purchased by any Underwriter whose funds shall not have been received by the Representatives by the First Closing Date or the applicable Option Closing Date, as the case may be, for the account of such Underwriter, but any such payment shall not relieve such Underwriter from any of its obligations under this Agreement.

(f) ***Delivery of the Offered Shares.*** The Company shall deliver, or cause to be delivered, through the facilities of the Depository Trust Company ("**DTC**"), unless the Representatives otherwise instruct, to the Representatives for the accounts of the several Underwriters the Firm Shares at the First Closing Date, against release of a wire transfer of immediately available funds for the amount of the purchase price therefor. The Company shall also deliver, or cause to be delivered, through the facilities of DTC, unless the Representatives otherwise instruct, to the Representatives for the accounts of the several Underwriters, the Optional Shares the Underwriters have agreed to purchase at the First Closing Date or the applicable Option Closing Date, as the case may be, against the release of a wire transfer of immediately available funds for the amount of the purchase price therefor. The Offered Shares shall be registered in such names and denominations as the Representatives shall have requested at least two full business days prior to the First Closing Date (or the applicable Option Closing Date, as the case may be) and shall be made available for inspection on the business day preceding the First Closing Date (or the applicable Option Closing Date, as the case may be) at a location in New York City as the Representatives may designate. Time shall be of the essence, and delivery at the time and place specified in this Agreement is a further condition to the obligations of the Underwriters.

Section 3. Additional Covenants of the Company. The Company further covenants and agrees with each Underwriter as follows:

(a) ***Delivery of Registration Statement, Time of Sale Prospectus and Prospectus.*** The Company shall furnish to you in New York City, without charge on the business day next succeeding the date of this Agreement and during the period when a prospectus relating to the Offered Shares is required by the Securities Act to be delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule) in connection with sales of the Offered Shares, as many copies of the Time of Sale Prospectus, the Prospectus and any supplements and amendments thereto or to the Registration Statement as you may reasonably request.

(b) ***Representatives' Review of Proposed Amendments and Supplements.*** During the period when a prospectus relating to the Offered Shares is required by the Securities Act to be delivered

(whether physically or through compliance with Rule 172 under the Securities Act or any similar rule), the Company (i) will furnish to the Representatives for review, a reasonable period of time prior to the proposed time of filing of any proposed amendment or supplement to the Registration Statement, a copy of each such amendment or supplement and (ii) will not amend or supplement the Registration Statement without the Representatives' prior written consent, which consent will not be unreasonably withheld, conditioned or delayed. Prior to amending or supplementing any preliminary prospectus, the Time of Sale Prospectus or the Prospectus, the Company shall furnish to the Representatives for review, a reasonable amount of time prior to the time of filing or use of the proposed amendment or supplement, a copy of each such proposed amendment or supplement. The Company shall not file or use any such proposed amendment or supplement without the Representatives' prior written consent, which consent will not be unreasonably withheld, conditioned or delayed. The

Company shall file with the Commission within the applicable period specified in Rule 424(b) under the Securities Act any prospectus required to be filed pursuant to such Rule.

(c) ***Free Writing Prospectuses.*** The Company shall furnish to the Representatives for review, a reasonable amount of time prior to the proposed time of filing or use thereof, a copy of each proposed free writing prospectus or any amendment or supplement thereto prepared by or on behalf of, used by, or referred to by the Company, and the Company shall not file, use or refer to any proposed free writing prospectus or any amendment or supplement thereto without the Representatives' prior written consent, which consent will not be unreasonably withheld, conditioned or delayed. The Company shall furnish to each Underwriter, without charge, as many copies of any free writing prospectus prepared by or on behalf of, used by or referred to by the Company as such Underwriter may reasonably request. If at any time when a prospectus is required by the Securities Act to be delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule) in connection with sales of the Offered Shares (but in any event if at any time through and including the First Closing Date) there occurred or occurs an event or development as a result of which any free writing prospectus prepared by or on behalf of, used by, or referred to by the Company conflicted or would conflict with the information contained in the Registration Statement or included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in light of the circumstances prevailing at such time, not misleading, the Company shall promptly amend or supplement such free writing prospectus to eliminate or correct such conflict or so that the statements in such free writing prospectus as so amended or supplemented will not include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances prevailing at such time, not misleading, as the case may be; *provided, however*, that prior to amending or supplementing any such free writing prospectus, the Company shall furnish to the Representatives for review, a reasonable amount of time prior to the proposed time of filing or use thereof, a copy of such proposed amended or supplemented free writing prospectus, and the Company shall not file, use or refer to any such amended or supplemented free writing prospectus without the Representatives' prior written consent, which consent will not be unreasonably withheld, conditioned or delayed.

(d) ***Filing of Underwriter Free Writing Prospectuses.*** The Company shall not take any action that would result in an Underwriter or the Company being required to file with the Commission pursuant to Rule 433(d) under the Securities Act a free writing prospectus prepared by or on behalf of such Underwriter that such Underwriter otherwise would not have been required to file thereunder.

(e) ***Amendments and Supplements to Time of Sale Prospectus.*** If the Time of Sale Prospectus is being used to solicit offers to buy the Offered Shares at a time when the Prospectus is not yet available to prospective purchasers, and any event shall occur or condition exist as a result of which it is necessary to amend or supplement the Time of Sale Prospectus so that the Time of Sale Prospectus does not include an untrue statement of a material fact or omit to state a material fact necessary in order

to make the statements therein, in light of the circumstances when delivered to a prospective purchaser, not misleading, or if any event shall occur or condition exist as a result of which the Time of Sale Prospectus conflicts with the information contained in the Registration Statement, or if, in the reasonable opinion of counsel for the Underwriters, it is necessary to amend or supplement the Time of Sale Prospectus to comply with applicable law, the Company shall (subject to Section 3(b) and Section 3(c) hereof) promptly prepare, file with the Commission and furnish, at its own expense, to the Underwriters and to any dealer upon request, either amendments or supplements to the Time of Sale Prospectus so that the statements in the Time of Sale Prospectus as so amended or supplemented will not include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances when delivered to a prospective purchaser, not misleading or so that the Time of Sale Prospectus, as amended or supplemented, will no longer conflict with the information contained in the Registration Statement, or so that the Time of Sale Prospectus, as amended or supplemented, will comply with applicable law.

(f) ***Certain Notifications and Required Actions.*** After the date of this Agreement, the Company shall promptly advise the Representatives in writing of: (i) the receipt of any comments of, or requests for additional or supplemental information from, the Commission; (ii) the time and date of any filing of any post-effective amendment to the Registration Statement or any amendment or supplement to any preliminary prospectus, the Time of Sale Prospectus, any free writing prospectus or the Prospectus; (iii) the time and date that any post-effective amendment to the Registration Statement becomes effective; and (iv) the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or any post-effective amendment thereto or any amendment or supplement to any preliminary prospectus, the Time of Sale Prospectus or the Prospectus or of any order preventing or suspending the use of any preliminary prospectus, the Time of Sale Prospectus, any free writing prospectus or the Prospectus, or of any proceedings to remove, suspend or terminate from listing or quotation the Shares from any securities exchange upon which they are listed for trading or included or designated for quotation, or of the threatening or initiation of any proceedings for any of such purposes. If the Commission shall enter any such stop order at any time, the Company will use its best efforts to obtain the lifting of such order at the earliest possible moment. Additionally, the Company agrees that it shall comply with all applicable provisions of Rule 424(b), Rule 433 and Rule 430A under the Securities Act and will use its reasonable efforts to confirm that any filings made by the Company under Rule 424(b) or Rule 433 were received in a timely manner by the Commission.

(g) ***Amendments and Supplements to the Prospectus and Other Securities Act Matters.*** If any event shall occur or condition exist as a result of which it is necessary to amend or supplement the Prospectus so that the Prospectus does not include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances when the Prospectus is delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule) to a purchaser, not misleading, or if in the reasonable opinion of the Representatives or counsel for the Underwriters it is otherwise necessary to amend or supplement the Prospectus to comply with applicable law, the Company agrees (subject to Section 3(b) and Section 3(c)) to promptly prepare, file with the Commission and furnish, at its own expense, to the Underwriters and to any dealer upon request, amendments or supplements to the Prospectus so that the statements in the Prospectus as so amended or supplemented will not include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances when the Prospectus is delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule) to a purchaser, not misleading or so that the Prospectus, as amended or supplemented, will comply with applicable law. Neither the Representatives' consent to, nor delivery of, any such amendment or supplement shall constitute a waiver of any of the Company's obligations under Section 3(b) or Section 3(c).

(h) ***Blue Sky Compliance.*** The Company shall cooperate with the Representatives and counsel for the Underwriters to qualify or register the Offered Shares for sale under (or obtain exemptions from the application of) the state securities or blue sky laws or Canadian provincial securities laws (or other foreign laws) of those jurisdictions designated by the Representatives, shall comply with such laws and shall continue such qualifications, registrations and exemptions in effect so long as required for the distribution of the Offered Shares. The Company shall not be required to qualify as a foreign corporation or to take any action that would subject it to general service of process in any such jurisdiction where it is not presently qualified or where it would be subject to

taxation as a foreign corporation. The Company will advise the Representatives promptly of the suspension of the qualification or registration of (or any such exemption relating to) the Offered Shares for offering, sale or trading in any jurisdiction or any initiation or threat of any proceeding for any such purpose, and in the event of the issuance of any order suspending such qualification, registration or exemption, the Company shall use its best efforts to obtain the withdrawal thereof at the earliest possible moment.

(i) ***Use of Proceeds.*** The Company shall apply the net proceeds from the sale of the Offered Shares sold by it substantially in the manner described under the caption "Use of Proceeds" in the Registration Statement, the Time of Sale Prospectus and the Prospectus.

(j) ***Transfer Agent.*** The Company shall engage and maintain, at its expense, a registrar and transfer agent for the Shares.

(k) ***Earnings Statement.*** The Company will make generally available to its security holders and to the Representatives as soon as practicable an earnings statement (which need not be audited) covering a period of at least twelve months beginning with the first fiscal quarter of the Company commencing after the date of this Agreement that will satisfy the provisions of Section 11(a) of the Securities Act and the rules and regulations of the Commission thereunder, which earnings statement shall be deemed to have been made generally available by the Company if the Company is in compliance with its reporting obligations pursuant to the Exchange Act, if such compliance satisfies the conditions of Rule 158 and if such earnings statement is made available on EDGAR.

(l) ***Continued Compliance with Securities Laws.*** The Company will comply with the Securities Act and the Exchange Act so as to permit the completion of the distribution of the Offered Shares as contemplated by this Agreement, the Registration Statement, the Time of Sale Prospectus and the Prospectus. Without limiting the generality of the foregoing, the Company will, during the period when a prospectus relating to the Offered Shares is required by the Securities Act to be delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule), file on a timely basis with the Commission and the NASDAQ all reports and documents required to be filed under the Exchange Act. Additionally, the Company shall report the use of proceeds from the issuance of the Offered Shares as may be required under Rule 463 under the Securities Act.

(m) ***Directed Share Program.*** In connection with the Directed Share Program, the Company will ensure that the Directed Shares will be restricted to the extent required by FINRA or its rules from sale, transfer, assignment, pledge or hypothecation for a period of three months following the date of the effectiveness of the Registration Statement. Jefferies will notify the Company as to which Participants will need to be so restricted. The Company will direct the transfer agent to place stop transfer restrictions upon such securities for such period of time. Should the Company release, or seek to release, from such restrictions any of the Directed Shares, the Company agrees to reimburse the Underwriters for any reasonable expenses (including, without limitation, reasonable attorney's fees and documented expenses of counsel) they incur in connection with such release.

(n) ***Listing.*** The Company will use its best efforts to list, subject to notice of issuance, the Offered Shares on the NASDAQ.

(o) ***Company to Provide Copy of the Prospectus in Form That May be Downloaded from the Internet.*** The Company shall cause to be prepared and delivered, at its expense, within one business day from the effective date of this Agreement, to the Representatives an "**electronic Prospectus**" to be used by the Underwriters in connection with the offering and sale of the Offered Shares. As used herein, the term "**electronic Prospectus**" means a form of the Time of Sale Prospectus, and any amendment or supplement thereto, that meets each of the following conditions: (i) it shall be encoded in an electronic format, satisfactory to the Representatives, that may be transmitted electronically by the Representatives and the other Underwriters to offerees and purchasers of the Offered Shares; (ii) it shall disclose the same information as the paper Time of Sale Prospectus, except to the extent that graphic and image material cannot be disseminated electronically, in which case such graphic and image material shall be replaced in the electronic Time of Sale Prospectus with a fair and accurate narrative description or tabular representation of such material, as appropriate; and (iii) it shall be in or convertible into a paper format or an electronic format, satisfactory to the Representatives, that will allow investors to store and have continuously ready access to the Time of Sale Prospectus at any future time, without charge to investors (other than any fee charged for subscription to the Internet as a whole and for on-line time). The Company hereby confirms that it has included or will include in the Time of Sale Prospectus filed pursuant to EDGAR or otherwise with the Commission and in the Registration Statement at the time it was declared effective an undertaking that, upon receipt of a request by an investor or his or her representative, the Company shall transmit or cause to be transmitted promptly, without charge, a paper copy of the Time of Sale Prospectus.

(p) ***Agreement Not to Offer or Sell Additional Shares.*** During the period commencing on and including the date hereof and continuing through and including the 180th day following the date of the Prospectus (such period being referred to herein as the "**Lock-up Period**"), the Company will not, without the prior written consent of the Representatives (which consent may be withheld in their sole discretion), directly or indirectly: (i) sell, offer to sell, contract to sell or lend any Shares or Related Securities (as defined below); (ii) effect any short sale, or establish or increase any "put equivalent position" (as defined in Rule 16a-1(h) under the Exchange Act) or liquidate or decrease any "call equivalent position" (as defined in Rule 16a-1(b) under the Exchange Act) of any Shares or Related Securities; (iii) pledge, hypothecate or grant any security interest in any Shares or Related Securities; (iv) in any other way transfer or dispose of any Shares or Related Securities; (v) enter into any swap, hedge or similar arrangement or agreement that transfers, in whole or in part, the economic risk of ownership of any Shares or Related Securities, regardless of whether any such transaction is to be settled in securities, in cash or otherwise; (vi) announce the offering of any Shares or Related Securities; (vii) file any registration statement under the Securities Act in respect of any Shares or Related Securities (other than as contemplated by this Agreement with respect to the Offered Shares); or (viii) publicly announce the intention to do any of the foregoing; *provided*, *however*, that the Company may (A) effect the transactions contemplated hereby, (B) repurchase Shares or Related Securities pursuant to an agreement to repurchase such Shares or Related Securities outstanding on the date of this Agreement, (C) issue Shares or options to purchase Shares, or issue Shares upon exercise of options, pursuant to any stock option, stock bonus, employee stock purchase or other stock plan or arrangement described in the Registration Statement, the Time of Sale Prospectus and the Prospectus, but only if the holders of such Shares or options agree in writing with the Underwriters not to sell, offer, dispose of or otherwise transfer any such Shares or options during such Lock-up Period without the prior written consent of the Representatives (which consent may be withheld in their sole discretion), (D) issue Shares pursuant to the conversion or exchange of convertible or exchangeable securities, (E) file a registration statement on Form S-8 to register Shares issuable pursuant to the terms of stock option, stock bonus or other stock plan or arrangement described in the Registration Statement, the Time of Sale Prospectus and the

Prospectus, (F) issue Shares in connection with any joint venture, commercial or collaborative relationship or the acquisition or license by the Company of the securities, businesses, property or other assets of another person or entity; provided, however, that in the case of clause (F), (x) such Shares shall not in the aggregate exceed 5% of the Company's outstanding shares of common stock on a fully diluted basis after giving effect to the sale of the offered Shares contemplated by this Agreement and (y) the recipients thereof provide to the Representatives a signed Lock-Up Agreement in the form attached as Exhibit A, and (G) issue Shares in connection with the payment of accrued dividends on shares of the Company's preferred stock as described in the Registration

Statement, the Time of Sale Prospectus and the Prospectus. For purposes of the foregoing, "**Related Securities**" shall mean any options or warrants or other rights to acquire Shares or any securities exchangeable or exercisable for or convertible into Shares, or to acquire other securities or rights ultimately exchangeable or exercisable for, or convertible into, Shares.

(q) ***Future Reports to the Representatives.*** During the period of five years hereafter, the Company will furnish to Jefferies, at 520 Madison Avenue, New York, New York 10022, Attention: Global Head of Syndicate, and to RBC, at 200 Vesey Street, 8th floor, New York, New York 10281, Attention: Equity Syndicate: (i) as soon as practicable after the end of each fiscal year, copies of the Annual Report of the Company containing the balance sheet of the Company as of the close of such fiscal year and statements of income, stockholders' equity and cash flows for the year then ended and the opinion thereon of the Company's independent public or certified public accountants; (ii) as soon as practicable after the filing thereof, copies of each proxy statement, Annual Report on Form 10-K, Quarterly Report on Form 10-Q, Current Report on Form 8-K or other public report filed by the Company with the Commission or any securities exchange; and (iii) as soon as available, copies of any report or communication of the Company furnished or made available generally to holders of its capital stock; *provided*, *however,* that the requirements of this Section 3(q) shall be satisfied to the extent that such reports, statement, communications, financial statements or other documents are available on EDGAR.

(r) ***Investment Limitation*****.** The Company shall not invest or otherwise use the proceeds received by the Company from its sale of the Offered Shares in such a manner as would require the Company to register as an investment company under the Investment Company Act.

(s) ***No Stabilization or Manipulation; Compliance with Regulation M*****.** The Company will not take, and will ensure that no affiliate of the Company will take, directly or indirectly, any action designed to or that might cause or result in stabilization or manipulation of the price of the Shares or any reference security with respect to the Shares, whether to facilitate the sale or resale of the Offered Shares or otherwise, and the Company will, and shall cause each of its affiliates to, comply with all applicable provisions of Regulation M.

(t) ***Enforce Lock-Up Agreements*****.** During the Lock-up Period, the Company will enforce all agreements between the Company and any of its security holders that restrict or prohibit, expressly or in operation, the offer, sale or transfer of Shares or Related Securities or any of the other actions restricted or prohibited under the terms of the form of Lock-up Agreement. In addition, the Company will direct the transfer agent to place stop transfer restrictions upon any such securities of the Company that are bound by such "lock-up" agreements for the duration of the periods contemplated in such agreements, including, without limitation, "lock-up" agreements entered into by the Company's officers, directors and stockholders pursuant to Section 6(k) hereof.

(u) ***Company to Provide Interim Financial Statements*****.** Prior to the First Closing Date and each applicable Option Closing Date, the Company will furnish the Underwriters, as soon as practicable after they have been prepared by or are available to the Company, a copy of any unaudited interim

financial statements of the Company for any period subsequent to the period covered by the most recent financial statements appearing in the Registration Statement and the Prospectus.

(v) ***Amendments and Supplements to Permitted Section 5(d) Communications***. If at any time following the distribution of any Permitted Section 5(d) Communication, there occurred or occurs an event or development as a result of which such Permitted Section 5(d) Communication included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in light of the circumstances existing at that subsequent time, not misleading, the Company will promptly notify the Representatives and will promptly amend or supplement, at its own expense, such Permitted Section 5(d) Communication to eliminate or correct such untrue statement or omission.

(w) ***Emerging Growth Company Status***. The Company will promptly notify the Representatives if the Company ceases to be an Emerging Growth Company at any time prior to the later of (i) the time when a prospectus relating to the Offered Shares is not required by the Securities Act to be delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule) and (ii) the expiration of the Lock-Up Period (as defined herein).

(x) ***Agreement Regarding Lock-ups***. Jefferies agrees with RBC that it shall not release or waive any restrictions set forth in a Lock-Up Agreement without the prior written consent of RBC. The Company agrees to announce the Representatives' intention to release any director or "officer" (within the meaning of Rule 16a-1(f) under the Exchange Act) of the Company from any of the restrictions imposed by any Lock-Up Agreement, by issuing, through a major news service, a press release in form and substance satisfactory to the Representatives or, if consented to by the Representatives, in a registration statement that is publicly filed in connection with a secondary offering of the Company's shares promptly following the Company's receipt of any notification from the Representatives in which such intention is indicated, but in any case not later than the close of the third business day prior to the date on which such release or waiver is to become effective; provided, however, that nothing shall prevent the Representatives, on behalf of the Underwriters, from announcing the same through a major news service, irrespective of whether the Company has made the required announcement; and provided, further, that no such announcement shall be made of any release or waiver granted solely to permit a transfer of securities that is not for consideration and where the transferee has agreed in writing to be bound by the terms of a Lock-Up Agreement in the form set forth as Exhibit A hereto.

The Representatives, on behalf of the several Underwriters, may, in their sole discretion, waive in writing the performance by the Company of any one or more of the foregoing covenants or extend the time for their performance.

Section 4. Payment of Expenses. The Company agrees to pay all costs, fees and expenses incurred in connection with the performance of its obligations hereunder and in connection with the transactions contemplated hereby, including without limitation (i) all expenses incident to the issuance and delivery of the Offered Shares (including all printing and engraving costs), (ii) all fees and expenses of the registrar and transfer agent of the Shares, (iii) all necessary issue, transfer and other stamp taxes in connection with the issuance and sale of the Offered Shares to the Underwriters, (iv) all fees and expenses of the Company's counsel, independent public or certified public accountants and other advisors, (v) all costs and expenses incurred in connection with the preparation, printing, filing, shipping and distribution of the Registration Statement (including financial statements, exhibits, schedules, consents and certificates of experts), the Time of Sale Prospectus, the Prospectus, each free writing prospectus prepared by or on behalf of, used by, or referred to by the Company, and each preliminary prospectus, each Permitted Section 5(d) Communication, and all amendments and supplements thereto, and this Agreement, (vi) all filing fees, reasonable and documented attorneys' fees and expenses incurred by the Company or the Underwriters in connection with qualifying or registering (or obtaining exemptions from the qualification

or registration of) all or any part of the Offered Shares for offer and sale under the state securities or blue sky laws or the provincial securities laws of Canada, and, if requested by the Representatives, preparing and printing a "Blue Sky Survey" or memorandum and a "Canadian wrapper", and any supplements thereto, advising the Underwriters of such qualifications, registrations and exemptions, (vii) the costs, fees and expenses incurred by the Underwriters in connection with determining their compliance with the rules and regulations of FINRA related to the Underwriters' participation in the offering and distribution of the Offered Shares, including any related filing fees and the reasonable and documented legal fees of, and disbursements by, counsel to the Underwriters, (viii) the costs and expenses of the Company relating to investor presentations on any "road show", any Permitted Section 5(d) Communication or any Section 5(d) Oral Communication undertaken in connection with the offering of the Offered Shares, including, without limitation, expenses associated with the preparation or dissemination of any electronic Road Show, expenses associated with the production of Road Show slides and graphics, fees and expenses of any consultants engaged in connection with the Road Show with the prior approval of the Company, travel and lodging expenses of the employees and officers of the Company and any such consultants, and 50% of the cost of any aircraft chartered in connection with the Road Show, (ix) the fees and expenses associated with listing the Offered Shares on the NASDAQ, (x) all other fees, costs and expenses of the nature referred to in Item 13 of Part II of the Registration Statement, and (xi) all costs and expenses of the Underwriters, including the reasonable and documented fees and disbursements of counsel for the Underwriters, in connection with matters related to the Directed Shares that are designated by the Company for sale to Participants; provided, however, that the costs, fees and expenses of counsel in clauses (vi) and (vii) shall in no event exceed $35,000 in the aggregate. Except as provided in this Section 4 or in Section 7, Section 9 or Section 10 hereof, the Underwriters shall pay their own expenses, including the fees and disbursements of their counsel, their own travel and lodging expenses and 50% of the cost of any aircraft chartered in connection with the Road Show.

Section 5. Covenant of the Underwriters. Each Underwriter severally and not jointly covenants with the Company not to take any action that would result in the Company being required to file with the Commission pursuant to Rule 433(d) under the Securities Act a free writing prospectus prepared by or on behalf of such Underwriter that otherwise would not, but for such actions, be required to be filed by the Company under Rule 433(d).

Section 6. Conditions of the Obligations of the Underwriters. The respective obligations of the several Underwriters hereunder to purchase and pay for the Offered Shares as provided herein on the First Closing Date and, with respect to the Optional Shares, each Option Closing Date, shall be subject to the accuracy of the representations and warranties on the part of the Company set forth in Section 1 hereof as of the date hereof and as of the First Closing Date as though then made and, with respect to the Optional Shares, as of each Option Closing Date as though then made, to the timely performance by the Company of its covenants and other obligations hereunder, and to each of the following additional conditions:

(a) ***Comfort Letter*****.** On the date hereof, the Representatives shall have received from Ernst & Young LLP, independent registered public accountants for the Company, a letter dated the date hereof addressed to the Underwriters, in form and substance satisfactory to the Representatives, containing statements and information of the type ordinarily included in accountant's "comfort letters" to underwriters, delivered according to Statement of Auditing Standards No. 72 (or any successor bulletin), with respect to the audited and unaudited financial statements of the Company and certain financial information contained in the Registration Statement, the Time of Sale Prospectus, and each free writing prospectus, if any.

(b) ***Compliance with Registration Requirements; No Stop Order; No Objection from FINRA*****.** For the period from and after the date of this Agreement and through and including the First

Closing Date and, with respect to any Optional Shares purchased after the First Closing Date, each Option Closing Date:

(i) The Company shall have filed the Prospectus with the Commission (including the information required by Rule 430A under the Securities Act) in the manner and within the time period required by Rule 424(b) under the Securities Act; or the Company shall have filed a post-effective amendment to the Registration Statement containing the information required by such Rule 430A, and such post-effective amendment shall have become effective.

(ii) No stop order suspending the effectiveness of the Registration Statement or any post-effective amendment to the Registration Statement shall be in effect, and no proceedings for such purpose shall have been instituted or threatened by the Commission.

(iii) FINRA shall have raised no objection to the fairness and reasonableness of the underwriting terms and arrangements.

(c) ***No Material Adverse Change*****.** For the period from and after the date of this Agreement and through and including the First Closing Date and, with respect to any Optional Shares purchased after the First Closing Date, each Option Closing Date, in the judgment of the Representatives there shall not have occurred any Material Adverse Change.

(d) ***Opinion of Counsel for the Company*****.** On each of the First Closing Date and each Option Closing Date, the Representatives shall have received the opinion of Honigman Miller Schwartz and Cohn LLP, counsel for the Company, in form and substance satisfactory to the Representatives, dated as of such date.

(e) ***Opinion of Chief Legal Officer of the Company.*** On each of the First Closing Date and each Option Closing Date, the Representatives shall have received the opinion of David Lowenschuss, Chief Legal Officer of the Company, in form and substance satisfactory to the Representatives, dated as of such date.

(f) ***Opinion of Intellectual Property Counsel for the Company*****.** On each of the First Closing Date and each Option Closing Date, the Representatives shall have received the opinion of Honigman Miller Schwartz and Cohn LLP, intellectual property counsel for the Company, in form and substance satisfactory to the Representatives, dated as of such date.

(g) ***Opinion of Regulatory Counsel for the Company*****.** On each of the First Closing Date and each Option Closing Date, the Representatives shall have received the opinion of Hyman, Phelps & McNamara, P.C., regulatory counsel for the Company, in form and substance satisfactory to the Representatives, dated as of such date.

(h) ***Opinion of Counsel for the Underwriters*****.** On each of the First Closing Date and each Option Closing Date, the Representatives shall have received the opinion of Cooley LLP, counsel for the Underwriters in connection with the offer and sale of the Offered Shares, in form and substance satisfactory to the Representatives, dated as of such date.

(i) ***Officers' Certificate*****.** On each of the First Closing Date and each Option Closing Date, the Representatives shall have received a certificate executed by the Chief Executive Officer or President of the Company and the Chief Financial Officer of the Company, solely in their respective capacities as such, dated as of such date, to the effect set forth in Section 6(b)(ii) and further to the effect that:

(i) for the period from and including the date of this Agreement through and including such date, there has not occurred any Material Adverse Change;

(ii) the representations, warranties and covenants of the Company set forth in Section 1 of this Agreement are true and correct with the same force and effect as though expressly made on and as of such date; and

(iii) the Company has complied with all the agreements hereunder and satisfied all the conditions on its part to be performed or satisfied hereunder at or prior to such date.

(j) ***Bring-down Comfort Letter.*** On each of the First Closing Date and each Option Closing Date, the Representatives shall have received from Ernst & Young LLP, independent registered public accountants for the Company a letter dated such date, in form and substance satisfactory to the Representatives, which letter shall: (i) reaffirm the statements made in the letter furnished by them pursuant to Section 6(a), except that the specified date referred to therein for the carrying out of procedures shall be no more than three business days prior to the First Closing Date or the applicable Option Closing Date, as the case may be; and (ii) cover certain financial information contained in the Prospectus.

(k) ***Lock-Up Agreements.*** On or prior to the date hereof, the Company shall have furnished to the Representatives an agreement in the form of Exhibit A hereto from each director and officer and substantially all beneficial owners (as defined according to Rule 13d-3 under the Exchange Act) of any outstanding issued share capital of the Company, and each such agreement shall be in full force and effect on each of the First Closing Date and each Option Closing Date.

(l) ***Rule 462(b) Registration Statement.*** In the event that a Rule 462(b) Registration Statement is filed in connection with the offering contemplated by this Agreement, such Rule 462(b) Registration Statement shall have been filed with the Commission on the date of this Agreement and shall have become effective automatically upon such filing.

(m) ***Approval of Listing***. At the First Closing Date, the Offered Shares shall have been approved for listing on the NASDAQ, subject only to official notice of issuance.

(n) ***Additional Documents***. On or before each of the First Closing Date and each Option Closing Date, the Representatives and counsel for the Underwriters shall have received such information, documents and opinions as they may reasonably request for the purposes of enabling them to pass upon the issuance and sale of the Offered Shares as contemplated herein, or in order to evidence the accuracy of any of the representations and warranties, or the satisfaction of any of the conditions or agreements, herein contained; and all proceedings taken by the Company in connection with the issuance and sale of the Offered Shares as contemplated herein and in connection with the other transactions contemplated by this Agreement shall be satisfactory in form and substance to the Representatives and counsel for the Underwriters.

If any condition specified in this Section 6 is not satisfied when and as required to be satisfied, this Agreement may be terminated by the Representatives by notice from the Representatives to the Company at any time on or prior to the First Closing Date and, with respect to the Optional Shares, at any time on or prior to the applicable Option Closing Date, which termination shall be without liability on the part of any party to any other party, except that Section 4, Section 7, Section 9 and Section 10 shall at all times be effective and shall survive such termination.

Section 7. Reimbursement of Underwriters' Expenses. If this Agreement is terminated by the Representatives pursuant to Section 6, Section 11, or Section 12, or if the sale to the Underwriters of the Offered Shares on the First Closing Date is not consummated because of any refusal, inability or failure on the part of the Company to perform any agreement herein or to comply with any

provision hereof, the Company agrees to reimburse the Representatives and the other Underwriters (or such Underwriters as have terminated this Agreement with respect to themselves), severally, upon demand for all out-of-pocket expenses that shall have been reasonably incurred by the Representatives and the Underwriters in connection with the proposed purchase and the offering and sale of the Offered Shares, including, but not limited to, fees and disbursements of counsel, printing expenses, travel expenses, postage, facsimile and telephone charges; provided however, that in the event of termination after the First Closing Date, Section 4 shall govern the payment of expenses incurred by the Underwriters in connection with the First Closing Date or any successful Option Closing Date and this Section 7 shall only apply to expenses incurred by the Underwriters after such First Closing Date or successful Option Closing Date, as the case may be.

Section 8. Effectiveness of this Agreement. This Agreement shall become effective upon the execution and delivery hereof by the parties hereto.

Section 9. Indemnification.

(a) ***Indemnification of the Underwriters.*** The Company agrees to indemnify and hold harmless each Underwriter, its affiliates, directors, officers, employees and agents, and each person, if any, who controls any Underwriter within the meaning of the Securities Act or the Exchange Act against any loss, claim, damage, liability or expense, as incurred, to which such Underwriter or such affiliate, director, officer, employee, agent or controlling person may become subject, under the Securities Act, the Exchange Act, other federal or state statutory law or regulation, or the laws or regulations of foreign jurisdictions where Offered Shares have been offered or sold or at common law or otherwise (including in settlement of any litigation, if such settlement is effected with the written consent of the Company), insofar as such loss, claim, damage, liability or expense (or actions in respect thereof as contemplated below) arises out of or is based upon (A) (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, or any amendment thereto, or the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading; or (ii) any untrue statement or alleged untrue statement of a material fact included in any preliminary prospectus, the Time of Sale Prospectus, any free writing prospectus that the Company has used, referred to or filed, or is required to file, pursuant to Rule 433(d) of the Securities Act, any Marketing Material, any Section 5(d) Written Communication or the Prospectus (or any amendment or supplement to the foregoing) or any prospectus wrapper material distributed in connection with the reservation and sale of Directed Shares to the Participants, or the omission or alleged omission to state therein a material fact necessary in order to make the statements, in light of the circumstances under which they were made, not misleading; or (B) the violation of any laws or regulations of

foreign jurisdictions where Offered Shares have been offered or sold; and to reimburse each Underwriter and each such affiliate, director, officer, employee, agent and controlling person for any and all reasonable expenses (including the fees and disbursements of counsel) as such expenses are incurred by such Underwriter or such affiliate, director, officer, employee, agent or controlling person in connection with investigating, defending, settling, compromising or paying any such loss, claim, damage, liability, expense or action; *provided, however*, that the foregoing indemnity agreement shall not apply to any loss, claim, damage, liability or expense to the extent, but only to the extent, arising out of or based upon any untrue statement or alleged untrue statement or omission or alleged omission made in reliance upon and in conformity with information relating to any Underwriter furnished to the Company by the Representatives in writing expressly for use in the Registration Statement, any preliminary prospectus, the Time of Sale Prospectus, any such free writing prospectus, any Marketing Material, any Section 5(d) Written Communication or the Prospectus (or any amendment or supplement thereto), it being understood and agreed that the only such information consists of the information described in Section 9(b) below. The indemnity agreement set forth in this Section 9(a) shall be in addition to any liabilities that the Company may otherwise have.

(b) ***Indemnification of the Company, its Directors and Officers.*** Each Underwriter agrees, severally and not jointly, to indemnify and hold harmless the Company, each of its directors, each of its officers who signed the Registration Statement, and each person, if any, who controls the Company within the meaning of the Securities Act or the Exchange Act, against any loss, claim, damage, liability or expense, as incurred, to which the Company, or any such director, officer, or controlling person may become subject, under the Securities Act, the Exchange Act, or other federal or state statutory law or regulation, or at common law or otherwise (including in settlement of any litigation, if such settlement is effected with the written consent of such Underwriter), insofar as such loss, claim, damage, liability or expense (or actions in respect thereof as contemplated below) arises out of or is based upon (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, or any amendment thereto, or any omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading or (ii) any untrue statement or alleged untrue statement of a material fact included in any preliminary prospectus, the Time of Sale Prospectus, any free writing prospectus, that the Company has used, referred to or filed, or is required to file, pursuant to Rule 433 of the Securities Act, any Section 5(d) Written Communication or the Prospectus (or any such amendment or supplement) or the omission or alleged omission to state therein a material fact necessary in order to make the statements, in light of the circumstances under which they were made, not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in the Registration Statement, such preliminary prospectus, the Time of Sale Prospectus, such free writing prospectus, such Section 5(d) Written Communication or the Prospectus (or any such amendment or supplement), in reliance upon and in conformity with information relating to such Underwriter furnished to the Company by the Representatives in writing expressly for use therein; and to reimburse the Company, or any such director, officer, or controlling person for any and all reasonable expenses (including the fees and disbursements of counsel) as such expenses are incurred by the Company, or any such director, officer, or controlling person in connection with investigating, defending, settling, compromising or paying any such loss, claim, damage, liability, expense or action. The Company hereby acknowledges that the only information that the Representatives have furnished to the Company expressly for use in the Registration Statement, any preliminary prospectus, the Time of Sale Prospectus, any free writing prospectus that the Company has filed, or is required to file, pursuant to Rule 433(d) of the Securities Act, any Section 5(d) Written Communication or the Prospectus (or any amendment or supplement to the foregoing) are the statements set forth in the first sentence of the fourth paragraph under the caption “Underwriting,” the first three sentences of the first paragraph under the section entitled “Commission and Expenses,” and the first sentence of the first paragraph under the section entitled “Stabilization,” each under the caption “Underwriting” in the Registration Statement, Preliminary Prospectus, Time of Sale Prospectus and the Prospectus. The indemnity agreement set forth in this Section 9(b) shall be in addition to any liabilities that each Underwriter may otherwise have.

(c) ***Notifications and Other Indemnification Procedures.*** Promptly after receipt by an indemnified party under this Section 9 of notice of the commencement of any action, such indemnified party will, if a claim in respect thereof is to be made against an indemnifying party under this Section 9, notify the indemnifying party in writing of the commencement thereof, but the omission so to notify the indemnifying party will not relieve the indemnifying party from any liability which it may have to any indemnified party to the extent the indemnifying party is not materially prejudiced as a proximate result of such failure and shall not in any event relieve the indemnifying party from any liability that it may have otherwise than on account of this indemnity agreement. In case any such action is brought against any indemnified party and such indemnified party seeks or intends to seek indemnity from an indemnifying party, the indemnifying party will be entitled to participate in, and, to the extent that it shall elect, jointly with all other indemnifying parties similarly notified, by written notice delivered to the indemnified party promptly after receiving the aforesaid notice from such indemnified party, to assume the defense thereof with counsel reasonably satisfactory to such indemnified party; *provided,*

however, that if the defendants in any such action include both the indemnified party and the indemnifying party and the indemnified party shall have reasonably concluded that a conflict may arise between the positions of the indemnifying party and the indemnified party in conducting the defense of any such action or that there may be legal defenses available to it or other indemnified parties that are different from or additional to those available to the indemnifying party, the indemnified party or parties shall have the right to select separate counsel to assume such legal defenses and to otherwise participate in the defense of such action on behalf of such indemnified party or parties. Upon receipt of notice from the indemnifying party to such indemnified party of such indemnifying party’s election so to assume the defense of such action and approval by the indemnified party of counsel, the indemnifying party will not be liable to such indemnified party under this Section 9 for any legal or other expenses subsequently incurred by such indemnified party in connection with the defense thereof unless (i) the indemnified party shall have employed separate counsel in accordance with the proviso to the preceding sentence (it being understood, however, that the indemnifying party shall not be liable for the fees and expenses of more than one separate counsel (together with local counsel), representing the indemnified parties who are parties to such action), which counsel (together with any local counsel) for the indemnified parties shall be selected by the Representatives (in the case of counsel for the indemnified parties referred to in Section 9(a) above) or by the Company (in the case of counsel for the indemnified parties referred to in Section 9(b) above)) or (ii) the indemnifying party shall not have employed counsel reasonably satisfactory to the indemnified party to represent the indemnified party within a reasonable time after notice of commencement of the action or (iii) the indemnifying party has authorized in writing the employment of counsel for the indemnified party at the expense of the indemnifying party, in each of which cases the fees and expenses of counsel shall be at the expense of the indemnifying party and shall be paid as they are incurred.

(d) ***Settlements.*** The indemnifying party under this Section 9 shall not be liable for any settlement of any proceeding effected without its written consent, but if settled with such consent or if there be a final judgment for the plaintiff, the indemnifying party agrees to indemnify the indemnified party against any loss, claim, damage, liability or expense by reason of such settlement or judgment. Notwithstanding the foregoing sentence, if at any time an indemnified party shall have requested an indemnifying party to reimburse the indemnified party for fees and expenses of counsel as contemplated by Section 9(c) hereof, the indemnifying party shall be liable for any settlement of any proceeding effected without its written consent if (i) such settlement is entered into more than 30 days after receipt by such indemnifying party of the aforesaid request and (ii) such indemnifying party shall not have reimbursed the indemnified party in accordance with such request prior to the date of such settlement. No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement, compromise or consent to the entry of judgment in any pending or threatened action, suit or proceeding in respect of which any indemnified

party is or could have been a party and indemnity was or could have been sought hereunder by such indemnified party, unless such settlement, compromise or consent includes an unconditional release of such indemnified party from all liability on claims that are the subject matter of such action, suit or proceeding and does not include an admission of fault or culpability or a failure to act by or on behalf of such indemnified party.

(e) ***Indemnification for Directed Shares.*** In connection with the offer and sale of the Directed Shares, the Company agrees, promptly upon a request in writing, to indemnify and hold harmless the Underwriters from and against any and all losses, liabilities, claims, damages and expenses incurred by any of them as a result of the failure of the Participants to pay for and accept delivery of Directed Shares which, by the end of the first business day following the date of this Agreement, were subject to a properly confirmed agreement to purchase. The Company agrees to indemnify and hold harmless the Underwriters and their respective affiliates, directors, officers, employees and agents, and each person, if any, who controls any of the Underwriters within the meaning of the Securities Act or the Exchange Act against any loss, claim, damage, liability or expense, as incurred, to which the

Underwriters or such controlling person may become subject, which is (i) caused by any untrue statement or alleged untrue statement of a material fact contained in any material prepared by or with the consent of the Company for distribution to Participants in connection with the Directed Share Program (including any prospectus wrapper material distributed in connection with the reservation and sale of Directed Shares) or caused by any omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading; (ii) caused by the failure of any Participant to pay for and accept delivery of Directed Shares that such Participant agreed to purchase; or (iii) related to, arising out of, or in connection with the Directed Share Program (other than as described in clause (i)); *provided, however*, that the foregoing indemnity agreement in clause (i) shall not apply to any loss, claim, damage, liability or expense to the extent, but only to the extent, arising out of or based upon any untrue statement or alleged untrue statement or omission or alleged omission made in reliance upon and in conformity with information relating to any Underwriter furnished to the Company by the Representatives in writing expressly for use in any material prepared by or with the consent of the Company for distribution to Participants in connection with the Directed Share Program (including any prospectus wrapper material distributed in connection with the reservation and sale of Directed Shares), it being understood and agreed that the only such information consists of the information described in Section 9(b) above. The indemnity agreement set forth in this paragraph shall be in addition to any liabilities that the Company may otherwise have.

Section 10. Contribution. If the indemnification provided for in Section 9 is for any reason held to be unavailable to or otherwise insufficient to hold harmless an indemnified party in respect of any losses, claims, damages, liabilities or expenses referred to therein, then each indemnifying party shall contribute to the aggregate amount paid or payable by such indemnified party, as incurred, as a result of any losses, claims, damages, liabilities or expenses referred to therein (i) in such proportion as is appropriate to reflect the relative benefits received by the Company, on the one hand, and the Underwriters, on the other hand, from the offering of the Offered Shares pursuant to this Agreement or (ii) if the allocation provided by clause (i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the Company, on the one hand, and the Underwriters, on the other hand, in connection with the statements or omissions which resulted in such losses, claims, damages, liabilities or expenses, as well as any other relevant equitable considerations. The relative benefits received by the Company, on the one hand, and the Underwriters, on the other hand, in connection with the offering of the Offered Shares pursuant to this Agreement shall be deemed to be in the same respective proportions as the total proceeds from the offering of the Offered Shares pursuant to this Agreement (before deducting expenses) received by the Company, and the total underwriting discounts and commissions received by the Underwriters, in each case as set forth on the front cover page of the Prospectus, bear to the aggregate initial public offering price of the Offered Shares as set forth on such cover. The relative fault of the Company, on the one hand, and the Underwriters, on the other hand, shall be determined by reference to, among other things, whether any such untrue or alleged untrue statement of a material fact or omission or alleged omission to state a material fact relates to information supplied by the Company, on the one hand, or the Underwriters, on the other hand, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission.

The amount paid or payable by a party as a result of the losses, claims, damages, liabilities and expenses referred to above shall be deemed to include, subject to the limitations set forth in Section 9(c), any legal or other fees or expenses reasonably incurred by such party in connection with investigating or defending any action or claim. The provisions set forth in Section 9(c) with respect to notice of commencement of any action shall apply if a claim for contribution is to be made under this Section 10; *provided, however,* that no additional notice shall be required with respect to any action for which notice has been given under Section 9(c) for purposes of indemnification.

The Company and the Underwriters agree that it would not be just and equitable if contribution pursuant to this Section 10 were determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation which does not take account of the equitable considerations referred to in this Section 10.

Notwithstanding the provisions of this Section 10, no Underwriter shall be required to contribute any amount in excess of the underwriting discounts and commissions received by such Underwriter in connection with the Offered Shares underwritten by it and distributed to the public. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations to contribute pursuant to this Section 10 are several, and not joint, in proportion to their respective underwriting commitments as set forth opposite their respective names on Schedule A. For purposes of this Section 10, each affiliate, director, officer, employee and agent of an Underwriter and each person, if any, who controls an Underwriter within the meaning of the Securities Act or the Exchange Act shall have the same rights to contribution as such Underwriter, and each director of the Company, each officer of the Company who signed the Registration Statement, and each person, if any, who controls the Company within the meaning of the Securities Act and the Exchange Act shall have the same rights to contribution as the Company.

Section 11. Default of One or More of the Several Underwriters. If, on the First Closing Date or any Option Closing Date any one or more of the several Underwriters shall fail or refuse to purchase Offered Shares that it or they have agreed to purchase hereunder on such date, and the aggregate number of Offered Shares which such defaulting Underwriter or Underwriters agreed but failed or refused to purchase does not exceed 10% of the aggregate number of the Offered Shares to be purchased on such date, the Representatives may make arrangements satisfactory to the Company for the purchase of such Offered Shares by other persons, including any of the Underwriters, but if no such arrangements are made by such date, the other Underwriters shall be obligated, severally and not jointly, in the proportions that the number of Firm Shares set forth opposite their respective names on Schedule A bears to the aggregate number of Firm Shares set forth opposite the names of all such non-defaulting Underwriters, or in such other proportions as may be specified by the Representatives with the consent of the non-defaulting Underwriters, to purchase the Offered Shares which such defaulting Underwriter or Underwriters agreed but failed or refused to purchase on such date. If, on the First Closing Date or any Option Closing Date any one or more of the Underwriters shall fail or refuse to purchase Offered Shares and the aggregate number of Offered Shares with respect to which such default occurs exceeds 10% of the aggregate number of Offered Shares to be

purchased on such date, and arrangements satisfactory to the Representatives and the Company for the purchase of such Offered Shares are not made within 48 hours after such default, this Agreement shall terminate without liability of any party to any other party except that the provisions of Section 4, Section 7, Section 9 and Section 10 shall at all times be effective and shall survive such termination. In any such case either the Representatives or the Company shall have the right to postpone the First Closing Date or the applicable Option Closing Date, as the case may be, but in no event for longer than seven days in order that the required changes, if any, to the Registration Statement and the Prospectus or any other documents or arrangements may be effected.

As used in this Agreement, the term "**Underwriter**" shall be deemed to include any person substituted for a defaulting Underwriter under this Section 11. Any action taken under this Section 11 shall not relieve any defaulting Underwriter from liability in respect of any default of such Underwriter under this Agreement.

Section 12. Termination of this Agreement. Prior to the purchase of the Firm Shares by the Underwriters on the First Closing Date, this Agreement may be terminated by the Representatives by notice given to the Company if at any time: (i) trading or quotation in any of the

Company's securities shall have been suspended or limited by the Commission or by the NASDAQ, or trading in securities generally on either the NASDAQ or the NYSE shall have been suspended or limited, or minimum or maximum prices shall have been generally established on any of such stock exchanges; (ii) a general banking moratorium shall have been declared by any federal or New York authorities; (iii) there shall have occurred any outbreak or escalation of national or international hostilities or any crisis or calamity, or any change in the United States or international financial markets, or any substantial change or development involving a prospective substantial change in United States' or international political, financial or economic conditions, as in the judgment of the Representatives is material and adverse and makes it impracticable to market the Offered Shares in the manner and on the terms described in the Time of Sale Prospectus or the Prospectus or to enforce contracts for the sale of securities; (iv) in the reasonable judgment of the Representatives there shall have occurred any Material Adverse Change; or (v) the Company shall have sustained a loss by strike, fire, flood, earthquake, accident or other calamity of such character as in the judgment of the Representatives may interfere materially with the conduct of the business and operations of the Company regardless of whether or not such loss shall have been insured. Any termination pursuant to this Section 12 shall be without liability on the part of (a) the Company to any Underwriter, except that the Company shall be obligated to reimburse the expenses of the Representatives and the Underwriters pursuant to Section 4 or Section 7 hereof or (b) any Underwriter to the Company; *provided, however,* that the provisions of Section 9 and Section 10 shall at all times be effective and shall survive such termination.

Section 13. No Advisory or Fiduciary Relationship. The Company acknowledges and agrees that (a) the purchase and sale of the Offered Shares pursuant to this Agreement, including the determination of the public offering price of the Offered Shares and any related discounts and commissions, is an arm's-length commercial transaction between the Company, on the one hand, and the several Underwriters, on the other hand, (b) in connection with the offering contemplated hereby and the process leading to such transaction, each Underwriter is and has been acting solely as a principal and is not the agent or fiduciary of the Company, or the Company's stockholders, or its creditors, employees or any other party, (c) no Underwriter has assumed or will assume an advisory or fiduciary responsibility in favor of the Company with respect to the offering contemplated hereby or the process leading thereto (irrespective of whether such Underwriter has advised or is currently advising the Company on other matters) and no Underwriter has any obligation to the Company with respect to the offering contemplated hereby except the obligations expressly set forth in this Agreement, (d) the Underwriters and their respective affiliates may be engaged in a broad range of transactions that involve interests that differ from those of the Company, and (e) the Underwriters have not provided any legal, accounting, regulatory or tax advice with respect to the offering contemplated hereby and the Company has consulted its own legal, accounting, regulatory and tax advisors to the extent it deemed appropriate.

Section 14. Representations and Indemnities to Survive Delivery. The respective indemnities, agreements, representations, warranties and other statements of the Company, of its officers, and of the several Underwriters set forth in or made pursuant to this Agreement will remain in full force and effect, regardless of any investigation made by or on behalf of any Underwriter or the Company or any of its or their partners, officers or directors or any controlling person, as the case may be, and, anything herein to the contrary notwithstanding, will survive delivery of and payment for the Offered Shares sold hereunder and any termination of this Agreement.

Section 15. Notices. All communications hereunder shall be in writing and shall be mailed, hand delivered or telecopied and confirmed to the parties hereto as follows:

If to the Representatives:

Jefferies LLC
520 Madison Avenue
New York, New York 10022
Facsimile: (646) 619-4437
Attention: General Counsel

RBC Capital Markets, LLC
200 Vesey Street, 8th Floor
New York, New York 10281
Facsimile: (212) 428-6260
Attention: Equity Syndicate

with a copy to:

Cooley LLP
1114 Avenue of the Americas
New York, New York 10036
Facsimile: (212) 479-6275
Attention: Divakar Gupta

If to the Company:

Gemphire Therapeutics Inc.
43334 Seven Mile Road, Suite 1000
Northville, Michigan 48167
Facsimile: (734) 864-5765
Attention: David Lowenschuss

with a copy to: Honigman Miller Schwartz and Cohn LLP
350 East Michigan Avenue, Suite 300
Kalamazoo, Michigan 49007-3800
Facsimile: (269) 337-7703
Attention: Phillip D. Torrence

Any party hereto may change the address for receipt of communications by giving written notice to the others.

Section 16. Successors. This Agreement will inure to the benefit of and be binding upon the parties hereto, including any substitute Underwriters pursuant to Section 11 hereof, and to the benefit of the affiliates, directors, officers, employees, agents and controlling persons referred to in Section 9 and Section 10, and in each case their respective successors, and personal representatives, and no other person will have any right or obligation hereunder. The term "**successors**" shall not include any purchaser of the Offered Shares as such from any of the Underwriters merely by reason of such purchase.

Section 17. Partial Unenforceability. The invalidity or unenforceability of any section, paragraph or provision of this Agreement shall not affect the validity or enforceability of any other section, paragraph or provision hereof. If any section, paragraph or provision of this Agreement is for any reason determined to be invalid or unenforceable, there shall be deemed to be made such minor changes (and only such minor changes) as are necessary to make it valid and enforceable.

Section 18. Governing Law Provisions. This Agreement shall be governed by and construed in accordance with the internal laws of the State of New York applicable to agreements made and to be performed in such state. Any legal suit, action or proceeding arising out of or based upon this

Agreement or the transactions contemplated hereby ("**Related Proceedings**") may be instituted in the federal courts of the United States of America located in the Borough of Manhattan in the City of New York or the courts of the State of New York in each case located in the Borough of Manhattan in the City of New York (collectively, the "**Specified Courts**"), and each party irrevocably submits to the exclusive jurisdiction (except for proceedings instituted in regard to the enforcement of a judgment of any such court (a "**Related Judgment**"), as to which such jurisdiction is non-exclusive) of such courts in any such suit, action or proceeding. Service of any process, summons, notice or document by mail to such party's address set forth above shall be effective service of process for any suit, action or other proceeding brought in any such court. The parties irrevocably and unconditionally waive any objection to the laying of venue of any suit, action or other proceeding in the Specified Courts and irrevocably and unconditionally waive and agree not to plead or claim in any such court that any such suit, action or other proceeding brought in any such court has been brought in an inconvenient forum.

Section 19. General Provisions. This Agreement constitutes the entire agreement of the parties to this Agreement and supersedes all prior written or oral and all contemporaneous oral agreements, understandings and negotiations with respect to the subject matter hereof. This Agreement may be executed in two or more counterparts, each one of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument. This Agreement may not be amended or modified unless in writing by all of the parties hereto, and no condition herein (express or implied) may be waived unless waived in writing by each party whom the condition is meant to benefit. The section headings herein are for the convenience of the parties only and shall not affect the construction or interpretation of this Agreement.

Each of the parties hereto acknowledges that it is a sophisticated business person who was adequately represented by counsel during negotiations regarding the provisions hereof, including, without limitation, the indemnification provisions of Section 9 and the contribution provisions of Section 10, and is fully informed regarding said provisions. Each of the parties hereto further acknowledges that the provisions of Section 9 and Section 10 hereof fairly allocate the risks in light of the ability of the parties to investigate the Company, its affairs and its business in order to assure that adequate disclosure has been made in the Registration Statement, any preliminary prospectus, the Time of Sale Prospectus, each free writing prospectus and the Prospectus (and any amendments and supplements to the foregoing), as contemplated by the Securities Act and the Exchange Act.

[Signature pages follow]

If the foregoing is in accordance with your understanding of our agreement, kindly sign and return to the Company the enclosed copies hereof, whereupon this instrument, along with all counterparts hereof, shall become a binding agreement in accordance with its terms.

Very truly yours,

GEMPHIRE THERAPEUTICS INC.

By: _____
Name:
Title:

The foregoing Underwriting Agreement is hereby confirmed and accepted by the Representatives in New York, New York as of the date first above written.

JEFFERIES LLC
RBC CAPITAL MARKETS, LLC
Acting individually and as Representatives
of the several Underwriters named in
the attached Schedule A.

JEFFERIES LLC

By: _____
Name:
Title:

RBC CAPITAL MARKETS, LLC

By: _____
Name:
Title:

Schedule A

Underwriters	Number of Firm Shares to be Purchased
Jefferies LLC	[·]
RBC Capital Markets, LLC	[·]
Canaccord Genuity Inc.	[·]
Roth Capital Partners, LLC	[·]
Total	[·]

Schedule B

Free Writing Prospectuses Included in the Time of Sale Prospectus

[·]

Pricing Information Included in the Time of Sale Prospectus

Price per share to the public:	$[·]
Number of shares being sold by the Company:	[·]
Number of shares potentially issuable pursuant to the option to purchase additional shares:	[·]

Schedule C

Permitted Section 5(d) Communications

[·]

Exhibit A

Form of Lock-up Agreement

, 2016

Jefferies LLC
RBC Capital Markets, LLC
As Representatives of the Several Underwriters

c/o Jefferies LLC
520 Madison Avenue
New York, New York 10022

c/o RBC Capital Markets, LLC
200 Vesey Street
New York, New York 10281

RE: Gemphire Therapeutics Inc. (the "**Company**")

Ladies & Gentlemen:

The undersigned is an owner of shares of common stock, par value $0.001 per share, of the Company ("**Shares**") or of securities convertible into or exchangeable or exercisable for Shares. The Company proposes to conduct a public offering of Shares (the "**Offering**") for which Jefferies LLC and RBC Capital Markets, LLC will act as the representatives (the "**Representatives**") of the underwriters. The undersigned recognizes that the Offering will benefit each of the Company and the undersigned. The undersigned acknowledges that the underwriters are relying on the representations and agreements of the undersigned contained in this letter agreement in conducting the Offering and, at a subsequent date, in entering into an underwriting agreement (the "**Underwriting Agreement**") and other underwriting arrangements with the Company with respect to the Offering.

Annex A sets forth definitions for capitalized terms used in this letter agreement that are not defined in the body of this agreement. Those definitions are a part of this agreement.

In consideration of the foregoing, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the undersigned hereby agrees that, during the Lock-up Period, the undersigned will not (and will cause any Family Member not to), without the prior written consent of the Representatives, which may withhold their consent in their sole discretion:

- Sell or Offer to Sell any Shares or Related Securities currently or hereafter owned either of record or beneficially (as defined in Rule 13d-3 under the Exchange Act) by the undersigned or such Family Member,
- enter into any Swap,

- make any demand for, or exercise any right with respect to, the registration under the Securities Act of the offer and sale of any Shares or Related Securities, or cause to be filed a registration statement, prospectus or prospectus supplement (or an amendment or supplement thereto) with respect to any such registration, or
- publicly announce any intention to do any of the foregoing.

The foregoing will not apply to the registration of the offer and sale of the Shares, and the sale of the Shares to the underwriters, in each case as contemplated by the Underwriting Agreement. In addition, the foregoing restrictions shall not apply to (a) the transfer of Shares or Related Securities by gift, or by will or intestate succession to a Family Member or to a trust whose beneficiaries consist exclusively of one or more of the undersigned and/or a Family Member; (b) the transfer of Shares or Related Securities that occurs by operation of law pursuant to a court order or settlement agreement related to the distribution of assets in connection with the dissolution of a marriage or civil union; provided that any public disclosure or filing under the Exchange Act or otherwise that is required to be made during the Lock-up Period as a result of such transfer shall include a statement that such transfer has occurred by operation of law; (c) the sale of, or offer to sell, Shares or Related Securities acquired in open market transactions after the Offering; (d) the exercise of options or other rights to acquire Shares or Related Securities (including the conversion of preferred stock of the Company into Shares) in accordance with their terms, provided that any such shares issued upon exercise, exchange or conversion of such Related Securities shall continue to be subject to the restrictions set forth herein; (e) the transfer or sale of Shares or Related Securities to the Company pursuant to agreements under which the Company, (i) upon termination of employment, has the option to repurchase such Shares or Related Securities, (ii) is required to repurchase such Shares or Related Securities or (iii) has a right of first refusal with respect to transfers of such Shares or Related Securities upon termination of service of the undersigned; (f) the "net" exercise of outstanding options in accordance with their terms pursuant to an employee benefit plan disclosed in the prospectus relating to the Offering and the surrender of Shares in lieu of payment in cash of the exercise price and any tax withholding obligations due as a result of such exercise or settlement; (g) the establishment of a trading plan pursuant to Rule 10b5-1 promulgated under the Exchange Act, provided, that there are no sales under or public disclosure of such plan during the Lock-up Period; and (h) the transfer of Shares or Related Securities pursuant to a bona fide third party tender offer, merger, consolidation or other similar transaction made to all holders of the Shares involving a Change of Control of the Company; provided that in the event that the tender offer, merger, consolidation or other such transaction is not completed, the Shares and Related Securities owned by the undersigned shall remain subject to the restrictions contained in this letter agreement; provided further, that:

- in the case of (a) and (b) above, it shall be a condition to such transfer that (i) each transferee executes and delivers to the Representatives an agreement in form and substance satisfactory to the Representatives stating that the transferee is receiving and holding such Shares or Related Securities subject to the provisions of this letter agreement and there shall be no further transfer of such Shares or Related Securities except in accordance with this letter agreement and (ii) such transfer shall not involve a disposition for value;
- in the case of (a), (c) and (d) above, prior to the expiration of the Lock-up Period, no public disclosure or filing under the Exchange Act by any party to the transfer (donor, donee, transferor or transferee) shall be required, or made voluntarily, reporting a reduction in beneficial ownership of Shares in connection with such transfer, except in the case of (a) above, in which case such transfer may be reported on a Form 5, but not sooner than the date of the expiration of the Lock-up Period; and

- in the case of (f) above, (i) no public disclosure or filing under the Exchange Act by any party to the transfer shall be required, or made voluntarily, reporting a reduction in beneficial ownership of Shares in connection with such exercise or settlement and (ii) the Shares received by the undersigned from the Company shall remain subject to the terms of this letter agreement.

In addition, notwithstanding the foregoing, if the undersigned is a non-natural person, the undersigned may transfer the undersigned's Shares or Related Securities to (A) any wholly-owned subsidiary of the undersigned or to the parent entity of the undersigned, (B) limited partners, members or stockholders of the undersigned and (C) any corporation, partnership, limited liability company, investment fund or other entity controlled or managed, or under common control or management by the undersigned or a Family Member of the undersigned; provided, however, that in any such case, it shall be a condition to the transfer that (X) the transferee executes and delivers to the Representatives an agreement in form and substance satisfactory to the Representatives stating that the transferee is receiving and holding such Shares or Related Securities subject to the provisions of this letter agreement and there shall be no further transfer of such Shares or Related Securities except in accordance with this letter agreement, (Y) in no case shall a filing or public disclosure under the Exchange Act by any party to the transfer (donor, donee, transferor or transferee) be required, or made voluntarily, reporting a reduction in beneficial ownership of Shares in connection with such transfer and (Z) any such transfer shall not involve a disposition for value.

The undersigned further agrees that the foregoing provisions shall be equally applicable to any Company-directed Shares the undersigned may purchase or otherwise receive in the Offering (including pursuant to a directed share program).

In addition, if the undersigned is an officer or director of the Company, (i) the Representatives agree that, at least three business days before the effective date of any release or waiver of the foregoing restrictions in connection with a transfer of Shares, the Representatives will notify the Company of the impending release or waiver, and (ii) the Company (in accordance with the provisions of the Underwriting Agreement) will announce the impending release or waiver by press release through a major news service or, if consented to by the Representatives, in a registration statement that is publicly filed in connection with a secondary offering of Shares at least two business days before the effective date of the release or waiver. Any release or waiver granted by the Representatives hereunder to any such officer or director shall only be effective two business days after the publication date of such press release or registration statement. The provisions of this paragraph will not apply if both (a) the release or waiver is effected solely to permit a transfer not for consideration and (b) the transferee has agreed in writing to be bound by the same terms described in this letter agreement that are applicable to the transferor to the extent and for the duration that such terms remain in effect at the time of the transfer.

The undersigned also agrees and consents to the entry of stop transfer instructions with the Company's transfer agent and registrar against the transfer of Shares or Related Securities held by the undersigned and the undersigned's Family Members, if any, except in compliance with the foregoing restrictions.

With respect to the Offering only, the undersigned waives any registration rights relating to registration under the Securities Act of the offer and sale of any Shares and/or any Related Securities owned either of record or beneficially by the undersigned, including any rights to receive notice of the Offering.

The undersigned confirms that the undersigned has not, and has no knowledge that any Family Member has, directly or indirectly, taken any action designed to or that might reasonably be expected to cause or result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale

of the Shares. The undersigned will not, and will cause any Family Member not to take, directly or indirectly, any such action.

Whether or not the Offering occurs as currently contemplated or at all depends on market conditions and other factors. The Offering will only be made pursuant to the Underwriting Agreement, the terms of which are subject to negotiation between the Company and the underwriters.

The undersigned hereby represents and warrants that the undersigned has full power, capacity and authority to enter into this letter agreement. This letter agreement is irrevocable and will be binding on the undersigned and the successors, heirs, personal representatives and assigns of the undersigned. This letter agreement will automatically terminate upon the earliest to occur, if any, of (a) the date the Company advises the Representatives in writing, prior to the execution of the Underwriting Agreement, that it has determined not to proceed with the Offering, (b) the date of the termination of the Underwriting Agreement if prior to the closing of the Offering and (c) December 31, 2016 if the Underwriting Agreement has not been executed and delivered by the Company by such date (provided that the Company may by written notice to the undersigned prior to December 31, 2016 extend such date until March 31, 2017).

This letter agreement shall be governed by, and construed in accordance with, the laws of the State of New York.

[*signature page follows*]

Very truly yours,

_____

Name of Security Holder *(Print exact name)*

By: _____

Signature

If not signing in an individual capacity:

_____

Name of Authorized Signatory *(Print)*

_____

Title of Authorized Signatory *(Print)*

(indicate capacity of person signing if signing as custodian, trustee, or on behalf of an entity)

ANNEX A

Certain Defined Terms
Used in Lock-up Agreement

For purposes of the letter agreement to which this Annex A is attached and of which it is made a part:

- "**Call Equivalent Position**" shall have the meaning set forth in Rule 16a-1(b) under the Exchange Act.
- "**Change of Control**" means the consummation of any bona fide third party tender offer, merger, consolidation or other similar transaction approved by the Board of Directors of the Company, the result of which is that any "person" (as defined in Section 13(d)(3) of the Exchange Act), or group of persons,

other than the Company or its subsidiaries, becomes the beneficial owner (as defined in Rules 13d-3 and 13d-5 of the Exchange Act) of 100% of the total voting power of the voting stock of the Company.

- "**Exchange Act**" shall mean the Securities Exchange Act of 1934, as amended.

- "**Family Member**" shall mean the spouse of the undersigned, an immediate family member of the undersigned or an immediate family member of the undersigned's spouse, in each case living in the undersigned's household or whose principal residence is the undersigned's household (regardless of whether such spouse or family member may at the time be living elsewhere due to educational activities, health care treatment, military service, temporary internship or employment or otherwise). "**Immediate family member**" as used above shall have the meaning set forth in Rule 16a-1(e) under the Exchange Act.

- "**Lock-up Period**" shall mean the period beginning on the date hereof and continuing through the close of trading on the date that is 180 days after the date of the Prospectus (as defined in the Underwriting Agreement).

- "**Put Equivalent Position**" shall have the meaning set forth in Rule 16a-1(h) under the Exchange Act.

- "**Related Securities**" shall mean any options or warrants or other rights to acquire Shares or any securities exchangeable or exercisable for or convertible into Shares, or to acquire other securities or rights ultimately exchangeable or exercisable for or convertible into Shares.

- "**Securities Act**" shall mean the Securities Act of 1933, as amended.

- "**Sell or Offer to Sell**" shall mean to:

    - sell, offer to sell, contract to sell or lend,

    - effect any short sale or establish or increase a Put Equivalent Position or liquidate or decrease any Call Equivalent Position

    - pledge, hypothecate or grant any security interest in, or

    - in any other way transfer or dispose of,

  in each case whether effected directly or indirectly.

- "**Swap**" shall mean any swap, hedge or similar arrangement or agreement that transfers, in whole or in part, the economic risk of ownership of Shares or Related Securities, regardless of whether any such transaction is to be settled in securities, in cash or otherwise.

Capitalized terms not defined in this Annex A shall have the meanings given to them in the body of this lock-up agreement.

SECOND AMENDED AND RESTATED

CERTIFICATE OF INCORPORATION
OF
GEMPHIRE THERAPEUTICS INC.

The undersigned, for the purpose of amending and restating the Certificate of Incorporation, as amended, of GEMPHIRE THERAPEUTICS INC., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the ***"Company"***), hereby certifies that:

ONE: The Company was incorporated under the name Gemphire Therapeutics Inc. pursuant to an original Certificate of Incorporation filed with the Secretary 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 and the Certificate of Incorporation was further amended by the First Amended and Restated Certificate of Incorporation filed with the Delaware Secretary on March 31, 2015 (collectively, the ***"Certificate of Incorporation"***).

TWO: This Amended and Restated Certificate of Incorporation was duly adopted in accordance with Sections 242 and 245 of the General Corporation Law of the State of Delaware, and restates, integrates and further amends the provisions of the Corporation's Certificate of Incorporation. The Certificate of Incorporation is hereby amended and restated to read as follows:

I.

The name of the Company is GEMPHIRE THERAPEUTICS INC.

II.

The address of the registered office of the Company in the State of Delaware is Corporation Trust Center, 108 West 13th Street, City of Wilmington, County of New Castle, 19801 and the name of the registered agent of the Company in the State of Delaware at such address is Business Filings Incorporated.

III.

The purpose of the Company is to engage in any lawful act or activity for which corporations may be organized under the Delaware General Corporation Law, as amended (***"DGCL"***).

IV.

A. Upon the filing of this Second Amended and Restated Certificate of Incorporation (this ***"Restated Certificate"***) with the Delaware Secretary (the ***"Effective Time"***), the total number of shares of all classes of capital stock which the Company shall have the authority to

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issue shall be twenty million (20,000,000) shares, consisting solely of: seventeen million six hundred and seventy-four thousand four hundred and nineteen (17,674,419) shares of common stock, par value $0.001 per share (the ***"Common Stock"***), and two million three hundred and twenty-five thousand and five hundred and eight-one (2,325,581) shares of preferred stock, par value $0.001 per share (the ***"Preferred Stock"***). Two million three hundred and twenty-five thousand and five hundred and eight-one (2,325,581) shares of the Preferred Stock are designated as "Series A Preferred Stock" (the ***"Series A Preferred"***).

B. [Reserved]

C. The rights, preferences, privileges, restrictions and other matters relating to the Series A Preferred are as follows:

1. DIVIDEND RIGHTS.

(a) Series A Dividend.

(i) From and after the date of issuance of any shares of Series A Preferred, dividends at a simple rate of eight percent (8%) per annum of the Series A Original Issue Price (as defined below) shall accrue on each outstanding share of the Series A Preferred (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof) (the ***"Series A Dividends"***). The Series A Dividends shall accrue day to day, whether or not declared and shall be cumulative; provided, however, that the Series A Dividends shall be payable only upon the earliest to occur of (1) the date determined by the Board of Directors of the Company (the ***"Board"***), (2) the liquidation, dissolution or winding-up of the Company (including a Deemed Liquidation Event (as defined below)) and (3) the conversion or redemption of at least a majority of the outstanding shares of the Series A Preferred (as applicable, the ***"Series A Dividend Payment Date"***). Subject to Subsection 1(a)(ii) of Article IV, Part C, below, the Series A Dividends shall be paid in cash. Notwithstanding the foregoing, if the Board reasonably believes that the Company is not legally able to pay the Series A Dividends in cash on the Series A Dividend Payment Date, the Series A Dividend shall be paid in shares of the Common Stock at a price equal to the then-effective Series A Preferred Conversion Price (as defined below), with any fractional shares being rounded up to the next whole share.

(ii) Notwithstanding any other provision set forth herein, in the event the Series A Dividends are paid upon the conversion of the outstanding shares of the Series A Preferred in connection with the Company's first firm commitment underwritten public offering of its Common Stock registered under the Securities Act of 1933, as amended (the ***"Act"***)(the ***"Initial Public Offering"***), the Company shall pay the Series A Dividends in shares of the Common Stock at a price equal to the then-effective Series A Preferred Conversion Price, with any fractional shares being rounded up to the next whole share.

(iii) The Company shall not declare, pay or set aside any dividends on shares of any other class or series of capital stock of the Company (other than

dividends on shares of the Common Stock payable in shares of the Common Stock) unless (in addition to the obtaining of any consents required elsewhere in this Certificate of Incorporation) the holders of the Series A Preferred then outstanding shall first receive a dividend on each outstanding share of the Series A Preferred equal to the aggregate Series A Dividends then accrued on such share of the Series A Preferred and not previously paid.

(b) Participation in Common Stock Dividends. If the Board shall declare a dividend payable upon the then-outstanding shares of the Common Stock, in addition to any dividend payable pursuant to Subsection 1(a) of Article IV, Part C, above, the Board shall declare at the same time a dividend upon the then-outstanding shares of the Series A Preferred, payable at the same time as the dividend paid on the Common Stock, in an amount equal to the amount of dividends per share of the Series A Preferred as would have been payable on the largest number of whole shares of the Common Stock into which each share of the Series A Preferred held by each holder thereof had been converted if such shares of the Series A Preferred been converted to the Common Stock pursuant to the provisions of Section 4 hereof as of the record date for the determination of holders of the Common Stock entitled to receive such dividends.

2. VOTING RIGHTS.

(a) General Rights. Except as otherwise provided herein or in the Company's bylaws, the Series A Preferred shall vote together with the Common Stock and all other classes and series of stock of the Company as a single class on all actions to be taken by the stockholders of the Company including, but not limited to, actions amending the certificate of incorporation of the Company to increase the number of authorized shares of the Common Stock. Each holder of shares of the Series A Preferred shall be entitled to the number of votes equal to the number of shares of the Common Stock into which such shares of the Series A Preferred are then convertible pursuant to Section 4 of Article IV, Part C hereof.

(b) Separate Vote of the Series A Preferred. For so long as any of the authorized shares of the Series A Preferred remain outstanding, in addition to any other vote or consent required by the Company's certificate of incorporation or bylaws, the vote or written consent of the holders of at least a majority of the outstanding shares of the Series A Preferred, voting or consenting together as a separate class, shall be necessary for authorizing, effecting or validating the following actions:

(i) issue or authorize any class or series of equity securities or equivalents (except pursuant to a management stock option plan approved by the Board of Directors);

(ii) effect any transaction that results in a change in control;

(iii) issue any convertible debt financing in excess of $1 million;

(iv) change the principal business of the Company, enter new lines of business, or exit the current line of business;

(v) materially sell, transfer, license, pledge or encumber technology or intellectual property (ordinary business is excluded including geographic partnerships); or

(vi) increase the size of the option pool.

3. LIQUIDATION RIGHTS.

(a) Preferential Payments to the Holders of the Series A Preferred. In the event of any Deemed Liquidation Event, voluntary or involuntary liquidation, dissolution or winding up of the Company, the holders of shares of the Series A Preferred then outstanding shall be entitled to be paid out of the assets of the Company legally available for distribution to its stockholders, before any payment shall be made to the holders of the Common Stock by reason of their ownership thereof, an amount per share equal to $2.15 (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like after the Effective Time, the ***"Series A Original Issue Price"***), plus any Series A Dividends accrued but unpaid thereon, whether or not declared, together with any other dividends declared but unpaid thereon (the ***"Series A Liquidation Preference"***). If, upon any such liquidation, dissolution or winding up of the Company, the assets of the Company available for distribution to its stockholders shall be insufficient to pay the holders of shares of the Series A Preferred the full amount to which they shall be entitled under this Subsection 3(a), the holders of shares of the Series A Preferred shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

(b) Distribution of Remaining Assets. In the event of any Deemed Liquidation Event, voluntary or involuntary liquidation, dissolution or winding up of the Company, after the payment of the Series A Liquidation Preference, the remaining assets of the Company available for distribution to its stockholders shall be distributed among the holders of the shares of the Common Stock and Series A Preferred, pro rata based on the number of shares held by each such holder, treating for this purpose all such securities as if they had been converted to the Common Stock pursuant to the terms of this Restated Certificate immediately prior to such dissolution, liquidation or winding up of the Company. The aggregate per share amount which a holder of a share of the Series A Preferred is entitled to receive under Subsections 3(a) and 3(b) is hereinafter referred to as the ***"Series A Liquidation Amount"***.

(c) Deemed Liquidation Events.

(i) Definition. Each of the following events shall be considered a ***"Deemed Liquidation Event"***, unless the holders of at least a majority of the then-outstanding shares of the Series A Preferred elect otherwise by written notice given to the Company at least ten (10) days prior to the effective date of any such event:

(A) a merger or consolidation in which the Company is a constituent party, or a subsidiary of the Company is a constituent party, and the Company issues shares of its capital stock pursuant to such merger or consolidation, except any such merger or consolidation involving the Company or a subsidiary in which the shares of capital stock of the Company outstanding immediately prior to such merger or consolidation continue to

represent, or are converted into or exchanged for shares of capital stock that represent, immediately following such merger or consolidation, at least a majority, by voting power, of the capital stock of (1) the surviving or resulting corporation or (2) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; or

(B) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Company or any subsidiary of the Company, of all or substantially all the assets of the Company and its subsidiaries taken as a whole, or the sale or disposition (whether by merger or otherwise) of one or more subsidiaries of the Company if substantially all of the assets of the Company and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except where such sale, lease, transfer, exclusive license or other disposition is to a wholly-owned subsidiary of the Company.

(ii) Effecting a Deemed Liquidation Event.

(A) The Company shall not have the power to effect a Deemed Liquidation Event referred to in this Subsection 3(c)(i)(A)(1) unless the definitive agreement for such transaction (the ***"Transaction Agreement"***) provides that the consideration payable to the stockholders of the Company shall be allocated among the holders of capital stock of the Company in accordance with the Subsections 3(a) - 3(b) above.

(B) In the event of a Deemed Liquidation Event referred to in Subsections 3(c)(i)(A)(2) and 3(c)(i)(B) above, if the Company does not effect a dissolution of the Company under the DGCL within ninety (90) days after such Deemed Liquidation Event, then (1) the Company shall send a written notice to each holder of the Series A Preferred no later than the ninetieth (90^{th}) day after the Deemed Liquidation Event advising such holders of their right (and the requirements to be met to secure such right) pursuant to the terms of the following clause (2) to require the redemption of such shares of the Series A Preferred, and (2) if the holders of at least a majority of the then-outstanding shares of the Series A Preferred so request in a written instrument delivered to the Company not later than one hundred twenty (120) days after such Deemed Liquidation Event, the Company shall use the consideration received by the Company for such Deemed Liquidation Event (net of any retained liabilities associated with the assets sold or technology licensed, as determined in good faith by the Board of the Company) together with any other assets of the Company available for distribution to its stockholders (the ***"Available Proceeds"***), to the extent legally available therefor, on the one hundred fiftieth (150^{th}) day after such Deemed Liquidation Event, to redeem all outstanding shares of (1) the Series A Preferred at a per share price equal to the Series A Liquidation Amount.

(C) Notwithstanding the foregoing, in the event of a redemption pursuant to the preceding clause, if the Available Proceeds are not sufficient to redeem all outstanding shares of the Series A Preferred, or if the Company does not have sufficient lawfully available funds to effect such redemption, the Company shall use such Available Proceeds (i) to first redeem the Series A Preferred to the fullest extent of such Available Proceeds or such lawfully available funds. The Company shall then redeem any remaining shares of the Common Stock as soon as practicable after the Company has funds legally available therefor. Prior to the distribution or redemption provided for in this Subsection 3(c)(ii)(C), the Company shall not expend or dissipate the consideration received for such Deemed Liquidation Event, except to discharge expenses incurred in connection with such Deemed Liquidation Event or in the ordinary course of business.

(iii) Amount Deemed Paid or Distributed. If the amount deemed paid or distributed under this Subsection 3 is made in property other than in cash, the value of such distribution shall be the fair market value of such property, determined as follows:

(A) For securities not subject to investment letters or other similar restrictions on free marketability,

(1) if traded on a securities exchange or the NASDAQ Stock Market, the value shall be deemed to be the average of the closing prices of the securities on such exchange or market over the thirty (30) trading day period ending three (3) days prior to the closing of such transaction;

(2) if actively traded over-the-counter, the value shall be deemed to be the average of the closing bid prices over the thirty (30) trading day period ending three (3) days prior to the closing of such transaction; or

(3) if there is no active public market, the value shall be the fair market value thereof, as determined by the Board acting in good faith. In any such case, the Board shall notify each holder of shares of the Series A Preferred of its determination of the fair market value or allocation, as the case may be, of such consideration prior to payment or accepting receipt thereof. If, within ten (10) days after receipt of such notice, the holders of not less than a majority of the shares of the Series A Preferred then outstanding shall notify the Board in writing of their objection to such determination, a determination of the fair market value of such consideration or allocation, as the case may be, shall be made by a nationally recognized independent investment banking firm acceptable to the Company and the holders of at least a majority of the shares of the Series A Preferred then outstanding. If the parties are unable to agree on such an investment banking firm, one shall be chosen by two nationally recognized independent investment banking firms, one of which shall be designated by the Company and one of which shall be designated by the holders of at least a majority of the shares of the Series A Preferred then outstanding. The Company shall bear the entire cost of the fees and expenses borne by the parties in such determination of such fair market value.

(B) The method of valuation of securities subject to investment letters or other similar restrictions on free marketability (other than restrictions arising solely by virtue of a stockholder's status as an affiliate or former affiliate) shall take into account an appropriate discount (as mutually determined by the Board and holders of at least a majority of the outstanding shares of the Series A Preferred) from the market value as determined pursuant to clause (1) above so as to reflect the approximate fair market value thereof.

(iv) Allocation of Escrow. In the event of a Deemed Liquidation Event pursuant to the Subsection 3(c)(i)(A)(1) above, if any portion of the consideration payable to the stockholders of the Company is placed into escrow and/or is payable to the stockholders of the Company subject to contingencies (the ***"Additional Consideration"***), the Transaction Agreement shall provide that (1) the portion of such consideration that is not Additional Consideration (the ***"Initial Consideration"***) shall be allocated among the holders of capital stock of the Company in accordance with the Subsections 3(a) — 3(b) above as if the Initial Consideration were the only consideration payable in connection with such Deemed Liquidation Event and (2) any additional consideration which becomes payable to the stockholders of the Company upon release from escrow or satisfaction of contingencies shall be allocated among the holders of capital stock of the Company in accordance with the Subsections above after taking into account the previous payment of the Initial Consideration as

part of the same transaction. For the purposes of this Subsection 3(c)(iv), consideration placed into escrow or retained as holdback to be available for satisfaction of indemnification or similar obligations in connection with such Deemed Liquidation Event shall be deemed to be Additional Consideration.

4. CONVERSION RIGHTS.

The holders of the Series A Preferred shall have the following rights with respect to conversion into shares of the Common Stock (the ***"Conversion Rights"***):

(a) Optional Conversion. Each share of the Series A Preferred may, at the option of the holder thereof, be converted by the holder thereof at any time into fully-paid and nonassessable shares of the Common Stock. The number of shares of the Common Stock to which a holder of the Series A Preferred shall be entitled upon conversion shall be the product obtained by multiplying the Series A Preferred Conversion Rate (as hereinafter defined) then in effect by the number of shares of the Series A Preferred being converted.

(b) Conversion Rate. The conversion rate in effect at any time for conversion of the Series A Preferred (the ***"Series A Preferred Conversion Rate"***) shall be the quotient obtained by dividing the Series A Original Issue Price by the Series A Preferred Conversion Price, calculated as provided in Subsection 4(c) below.

(c) Conversion Price. The conversion price for the Series A Preferred (the ***"Series A Preferred Conversion Price"***) shall initially be the Series A Original Issue Price. The Series A Preferred Conversion Price shall be adjusted from time to time after the Effective

Time in accordance with this Section 4 of Article IV. All references to the Series A Preferred Conversion Price herein shall mean the Series A Preferred Conversion Price as so adjusted.

(d) Mechanics of Conversion. Each holder of the Series A Preferred who desires to convert the same into shares of the Common Stock pursuant to this Subsection 4 of Article IV, Part C shall surrender the certificate or certificates therefore, duly endorsed, at the office of the Company or any transfer agent for the Series A Preferred, and shall give written notice to the Company at such office that such holder elects to convert the same. Such notice shall state the number of shares of the Series A Preferred being converted. Thereupon, the Company shall promptly (but in no event more than five (5) business days after delivery of the notice required by the first sentence of this Subsection 4(d) issue and deliver at such office to such holder a certificate or certificates for the number of shares of the Common Stock to which such holder is entitled and shall promptly pay (i) any unpaid Series A Dividends (whether or not declared) and any other declared and unpaid dividends on the shares of such Series A Preferred being converted in accordance with Subsection 1(a) of Article IV, Part C and (ii) in cash (at the Common Stock's fair market value determined in good faith by the Board as of the date of conversion) the value of any fractional share of the Common Stock otherwise issuable to any holder of the Series A Preferred. Such conversion shall be deemed to have been made at the close of business on the date of such surrender of the certificates representing the shares of the Series A Preferred to be converted, and the person entitled to receive the shares of the Common Stock issuable upon such conversion shall be treated for all purposes as the record holder of such shares of the Common Stock on such date.

(e) Adjustment for Stock Splits and Combinations. If at any time or from time to time on or after the Original Issue Date that the first share of the Series A Preferred is issued (the ***"Original Issue Date"***), the Company effects a subdivision of the outstanding Common Stock without a corresponding subdivision of the Series A Preferred, the Series A Preferred Conversion Price in effect immediately before that subdivision shall be proportionately decreased. Conversely, if at any time or from time to time after the Original Issue Date, the Company combines the outstanding shares of Common Stock into a smaller number of shares without a corresponding combination of the Series A Preferred, the Series A Preferred Conversion Price in effect immediately before the combination shall be proportionately increased. Any adjustment under this Subsection 4(e) shall become effective at the close of business on the date the subdivision or combination becomes effective.

(f) Adjustment for Common Stock Dividends and Distributions. If at any time or from time to time on or after the Original Issue Date, the Company pays a dividend or other distribution on the Common Stock in additional shares of the Common Stock (excluding any shares of the capital stock issued in payment of the Series A Dividends), the Series A Preferred Conversion Price that is then in effect shall be decreased as of the time of such issuance, as provided below:

(i) The Series A Preferred Conversion Price shall be adjusted by multiplying the Series A Preferred Conversion Price then in effect by a fraction:

(A) the numerator of which is the total number of shares of the Common Stock issued and outstanding immediately prior to the time of such issuance, and

(B) the denominator of which is the total number of shares of the Common Stock issued and outstanding immediately prior to the time of such issuance plus the number of shares of the Common Stock issuable in payment of such dividend or distribution.

(ii) If the Company fixes a record date to determine which holders of the Common Stock are entitled to receive such dividend or other distribution, the Series A Preferred Conversion Price shall be fixed as of the close of business on such record date and the number of shares of the Common Stock shall be calculated immediately prior to the close of business on such record date.

(iii) If such record date is fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefore, the Series A Preferred Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Series A Preferred Conversion Price shall be adjusted pursuant to this Subsection 4(f) to reflect the actual payment of such dividend or distribution.

(g) Adjustment for Reclassification, Exchange and Substitution. If at any time or from time to time on or after the Original Issue Date, the Common Stock issuable upon the conversion of the Series A Preferred is changed into the same or a different number of shares of any class or classes of stock, whether by recapitalization, reclassification or otherwise (other than a Deemed Liquidation Event or a subdivision or combination of shares or stock dividend or a reorganization, merger, consolidation or sale of assets provided for elsewhere in this Section 4 of Article IV, Part C), in any such event, each holder of the Series A Preferred shall then have the right to convert such stock into the kind and amount of stock and other securities and property receivable upon such recapitalization, reclassification or other change by holders of the maximum number of shares of the Common Stock into which such shares of the Series A

Preferred could have been converted immediately prior to such recapitalization, reclassification or change, all subject to further adjustment as provided herein or with respect to such other stock, securities or property by the terms thereof.

(h) Reorganizations, Mergers or Consolidations. If at any time or from time to time on or after the Original Issue Date, there is a capital reorganization of the Common Stock or a merger or consolidation of the Company with or into another corporation or another entity or person (other than a Deemed Liquidation Event or a recapitalization, subdivision, combination, reclassification, exchange or substitution of shares provided for elsewhere in this Section 4 of Article IV, Part C), as a part of such capital reorganization, merger or consolidation, provision shall be made so that the holders of the Series A Preferred shall thereafter be entitled to receive, upon conversion of the Series A Preferred, the number of shares of stock or other securities or property of the Company to which a holder of the number of shares of the Common Stock deliverable upon conversion would have been entitled upon such capital reorganization, merger or consolidation, subject to adjustment in respect of such stock, securities

or property by the terms thereof. In any such case, appropriate adjustment shall be made in the application of the provisions of this Subsection 4 with respect to the rights of the holders of the Series A Preferred after the capital reorganization, merger or consolidation to the end that the provisions of this Subsection 4 (including adjustment of the Series A Preferred Conversion Price then in effect and the number of shares issuable upon conversion of the Series A Preferred) shall be applicable after that event and be as nearly equivalent as practicable.

(i) Sale of Shares Below Series A Preferred Conversion Price.

(i) Full Ratchet: If the Company's next series of convertible Preferred Stock issued after the Series A Preferred (the ***"Next Preferred"***) is sold for per share price less than the then-effective Series A Preferred Conversion Price, then the Series A Preferred Conversion Price shall be reduced, as of the opening of business on the date of such issue, to the per share price of the Next Preferred. For clarification purposes, this Subsection 4(i)(i) is only applicable to the issuance of the Next Preferred, and Subsection 4(i)(ii) shall apply to all other issuances of Additional Shares of Common Stock.

(ii) Weighted Average: At any time or from time to time after the Original Issue Date, the Company issues or sells Additional Shares of Common Stock (as hereinafter defined), which are not shares of the Next Preferred, and other than as a dividend or other distribution on the Common Stock in Additional Shares of the Common Stock, as provided in the Subsection 4(f) above, and other than a subdivision or combination of shares of the Common Stock (as provided in the Subsection 4(e) above), for an Effective Price (as hereinafter defined) less than the then-effective Series A Preferred Conversion Price, then the Series A Preferred Conversion Price shall be reduced, as of the opening of business on the date of such issue or sale, to a price determined by multiplying the Series A Preferred Conversion Price in effect immediately prior to such issuance or sale by a fraction:

(A) the numerator of which shall be (i) the number of shares of the Common Stock Deemed Outstanding (as hereinafter defined) immediately prior to such issue or sale, *plus* (ii) the number of shares of the Common Stock which the Aggregate Consideration (as hereinafter defined) received by the Company for the total number of Additional Shares of Common Stock so issued would purchase at the then-effective Series A Preferred Conversion Price, and

(B) the denominator of which shall be (i) the number of shares of Common Stock Deemed Outstanding immediately prior to such issue or sale, *plus* (ii) the total number of Additional Shares of Common Stock so issued or deemed to be issued.

For purposes of the foregoing sentence ***"Common Stock Deemed Outstanding"*** means, as of any given date, the sum of (A) the number of shares of the Common Stock outstanding, (B) the number of shares of the Common Stock into which the then-outstanding shares of the Series A Preferred could be converted if fully converted on the day immediately preceding the given date, and (C) the number of shares of the Common Stock which could be obtained through the

exercise or conversion of all other rights, options and convertible securities outstanding on the day immediately preceding the given date.

Notwithstanding the provisions of this Subsection 4(i), no adjustment to the Series A Preferred Conversion Price shall be made pursuant to this Subsection 4(i) if, on or before the date of an issuance of sale, or deemed issuance or sale, of Additional Shares of Common Stock for an Effective Price less than the Series A Preferred Conversion Price then in effect, the holders of at least fifty percent (50%) of the outstanding shares of the Series A Preferred, voting or consenting as a separate class, waive the application of this Subsection 4(i) to the Series A Preferred Conversion Price in connection with any such issuance or sale, or deemed issuance or sale.

(iii) No adjustment shall be made to the Series A Preferred Conversion Price under this Subsection in an amount less than one cent ($0.01) per share. Any adjustment otherwise required by this Subsection 4(i) that is not required to be made due to the preceding sentence shall be included in any subsequent adjustment to the Series A Preferred Conversion Price.

(iv) For the purpose of the adjustment required under Section 4(i) if (1) the Company issues or sells (x) Convertible Securities or (y) rights or options for the purchase of Additional Shares of Common Stock or Convertible Securities and (2) the Effective Price (as defined below) of such Additional Shares of Common Stock is less than the Series A Preferred Conversion Price, in each case, the Company shall be deemed to have issued at the time of the issuance of such rights or options or Convertible Securities the maximum number of Additional Shares of Common Stock issuable upon exercise or conversion thereof and to have received as consideration for the issuance of such shares an amount equal to the total amount of the consideration, if any, received by the Company for the issuance of such rights or options or Convertible Securities plus:

(A) in the case of such rights or options, the minimum amounts of consideration, if any, payable to the Company upon the exercise of such rights or options; and

(B) in the case of Convertible Securities, the minimum amounts of consideration, if any, payable to the Company upon the conversion thereof (other than by cancellation of liabilities or obligations evidenced by such Convertible Securities); *provided* that if the minimum amounts of such consideration cannot be ascertained, but are a function of anti-dilution or similar protective clauses, the Company shall be deemed to have received the minimum amounts of consideration without reference to such clauses.

(C) If the minimum amount of consideration payable to the Company upon the exercise or conversion of rights, options or Convertible Securities is reduced over time or on the occurrence or non-occurrence of specified events other than by reason of anti-dilution adjustments, the Effective Price shall be recalculated using the figure to which such minimum amount of consideration is reduced; *provided, however,* that if the minimum amount of consideration payable to the Company upon the exercise or conversion of

such rights, options or Convertible Securities is subsequently increased, the Effective Price shall be again recalculated using the increased minimum amount of consideration payable to the Company upon the exercise or conversion of such rights, options or Convertible Securities.

(D) No further adjustment of the Series A Preferred Conversion Price, as adjusted upon the issuance of such rights, options or Convertible Securities, shall be made as a result of the actual issuance of Additional Shares of Common Stock or the exercise of any such rights or options or the conversion of any such Convertible Securities. If any such rights or options or the conversion privilege represented by any such Convertible Securities shall expire without having been exercised, the Series A Preferred Conversion Price as adjusted upon the issuance of such rights, options or Convertible Securities shall be readjusted to the Series A Preferred Conversion Price which would have been in effect had an adjustment been made on the basis that the only Additional Shares of Common Stock so issued were the Additional Shares of Common Stock, if any, actually issued or sold on the exercise of such rights or options or conversion of such Convertible Securities, and such Additional Shares of Common Stock, if any, were issued or sold for the consideration actually received by the Company upon such exercise, plus the consideration, if any, actually received by the Company for the granting of all such rights or options, whether or not exercised, plus the consideration received for issuing or selling the Convertible Securities actually converted, plus the consideration, if any, actually received by the Company (other than by cancellation of liabilities or obligations evidenced by such Convertible Securities) on the conversion of such Convertible Securities, *provided* that such readjustment shall not apply to prior conversions of any shares of the Series A Preferred.

(E) No readjustment pursuant to Subsection 4(i)(iii)(C) and 4(i)(iii)(D) shall have the effect of increasing the Series A Preferred Conversion Price to an amount which exceeds the lower of (1) the Series A Preferred Conversion Price on the original adjustment date or (2) the Series A Preferred Conversion Price that would have resulted from any issuance of Additional Shares of Common Stock between the original adjustment date and such readjustment date.

(v) As used in this Subsection and elsewhere in this Amended and Restated Certificate of Incorporation, capitalized terms shall have the following meanings:

(A) ***"Additional Shares of Common Stock"*** shall mean all shares of the Common Stock issued by the Company or deemed to be issued pursuant to this Section 4(i) after the Original Issue Date, other than (x) the following shares of Common Stock and (y) shares of Common Stock deemed issued pursuant to the following Options and Convertible Securities (clauses (x) and (y), collectively, ***"Exempted Securities"***):

(1) shares of the Common Stock issued or issuable upon conversion of any shares of the Series A Preferred;

(2) shares of the capital stock of the Company issued in payment of the Series A Dividends;

(3) shares of the Common Stock, including options, warrants or other rights to purchase up to such number of shares of the Common Stock (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like after the Original Issue Date), issued, sold or granted after the Original Issue Date to employees, officers or directors of, or consultants or advisors to the Company or any subsidiary pursuant to stock purchase or stock option plans or other arrangements that are approved by a majority of the members of the Board;

(4) shares of the Common Stock issued in connection with any stock split, stock dividend or recapitalization by the Company;

(5) shares of the Common Stock or the Series A Preferred issued or issuable pursuant to the exercise of options, warrants or Convertible Securities outstanding as of the Effective Time;

(6) shares of the Common Stock or Series A Preferred and/or options, warrants or other rights to purchase the Common Stock or the Series A Preferred issued or issuable for consideration other than cash pursuant to a merger, consolidation, acquisition, strategic alliance or similar business combination approved by a majority of the members of the Board;

(7) shares of the Common Stock or the Series A Preferred issued or issuable pursuant to any equipment loan or leasing arrangement, real property leasing arrangement or debt financing from a bank or similar financial institution approved by a majority of the members of the Board; and

(8) any equity securities issued or issuable in connection with strategic transactions involving the Company and other entities approved by a majority of the members of the Board, including (a) joint ventures, manufacturing, marketing or distribution arrangements or (b) technology transfer or development arrangements.

(B) ***"Aggregate Consideration"*** shall: (1) to the extent it consists of cash, be computed at the net amount of cash received by the Company after deduction of any underwriting or similar commissions, compensation or concessions paid or allowed by the Company in connection with such issue or sale but without deduction of any expenses payable by the Company; (2) to the extent it consists of property other than cash, be computed at the fair value of that property as determined in good faith by the Board; and (3) if Additional Shares of Common Stock, Convertible Securities or rights or options to purchase either Additional Shares of Common Stock or Convertible Securities are issued or sold together with other stock or securities or other assets of the Company for a consideration which covers both, be computed as the portion of the consideration so received that may be reasonably determined in good faith by the Board to be allocable to such Additional Shares of Common Stock, Convertible Securities or rights or options.

(C) ***"Convertible Securities"*** means any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for shares of the Common Stock, but excluding Options.

(D) ***"Effective Price"*** means the quotient determined by dividing the total number of Additional Shares of Common Stock issued or sold, or deemed to have been issued or sold by the Company under Subsection 4(i), into the Aggregate Consideration received, or deemed to have been received by the Company for such issue under Subsection 4(i), for such Additional Shares of Common Stock.

(E) ***"Option"*** means outstanding rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

(j) Multiple Closing Dates. In the event the Company shall issue on more than one date Additional Shares of Common Stock that are a part of one transaction or a series of related transactions and that would result in an adjustment to the Series A Preferred Conversion Price pursuant to the terms of Subsection 4(i), then, upon the final such issuance, the Series A Preferred Conversion Price shall be readjusted to give effect to all such issuances as if they occurred on the date of the first such issuance (and without giving effect to any additional adjustments as a result of any such subsequent issuances within such period).

(k) Certificate of Adjustment. In each case of an adjustment or readjustment of the Series A Preferred Conversion Price for the number of shares of the Common Stock or other securities issuable upon conversion of the Series A Preferred, the Company, at its expense, shall compute such adjustment or readjustment in accordance with the provisions hereof and prepare a certificate showing such adjustment or readjustment, and shall mail such certificate, by first class mail, postage prepaid, to each registered holder of the Series A Preferred at the holder's address as shown in the Company's books. The certificate shall set forth such adjustment or readjustment, showing in detail the facts upon which such adjustment or readjustment is based, including a statement of (i) the consideration received or deemed to be received by the Company for any Additional Shares of Common Stock issued or sold or deemed to have been issued or sold, (ii) the Effective Price of any such Additional Shares of Common Stock, (iii) the Series A Preferred Conversion Price for the Series A Preferred, at the time in effect, (iv) the number of Additional Shares of Common Stock and (v) the type and amount, if any, of other property which at the time would be received upon conversion of the Series A Preferred.

(l) Notices of Record Date. Upon (i) any taking by the Company of a record of the holders of any class of securities for the purpose of determining the holders thereof who are entitled to receive any dividend or other distribution, or (ii) any Deemed Liquidation Event or other capital reorganization of the Company, any stock split, combination of shares, reverse stock split, reorganization, recapitalization, or other reclassification affecting the Company's equity securities (each, a ***"Recapitalization Event"***), any merger or consolidation of the Company with or into any other corporation, or any voluntary or involuntary dissolution,

liquidation or winding up of the Company, the Company shall mail to each holder of the Series A Preferred at least ten (10) days prior to the record date specified therein (or such shorter period approved by the holders of a majority of the outstanding Series A Preferred) a notice specifying (A) the date on which any such record is to be taken for the purpose of such dividend or distribution and a description of such dividend or distribution, (B) the date on which any such Deemed Liquidation Event, Recapitalization Event, transfer, consolidation, merger, dissolution, liquidation or winding up is expected to become effective, and (C) the date, if any, that is to be fixed as to when the holders of record of the Common Stock (or other securities) shall be entitled to exchange their shares of the Common Stock (or other securities) for securities or other property deliverable upon such Deemed Liquidation Event, Recapitalization Event, transfer, consolidation, merger, dissolution, liquidation or winding up.

(m) Automatic Conversion.

(i) Either (A) upon the affirmative vote or consent of the holders of at least a majority of the outstanding shares of the Series A Preferred; or (B) immediately prior to the closing of a firmly underwritten initial public offering (involving the listing of the Company's Common Stock on a U.S. national securities exchange or the NASDAQ stock market) pursuant to an effective registration statement under the Act, covering the offer and sale of the Common Stock for the account of the Company at a price of (1) at least one and five-tenths (1.5) times the Series A Original Issue Price; and in which the net cash proceeds to the Company (before underwriting discounts, commissions and fees) are at least fifty million dollars ($50,000,000) (the ***"Qualified Initial Public Offering"***) (the time immediately prior to such closing or the date and time of the event specified in such vote or written consent is referred to herein as the ***"Automatic Conversion Time"***), (1) all outstanding shares of the Series A Preferred shall automatically be converted into shares of the Common Stock, at the then-effective Series A Preferred Conversion Price, and (2) such shares may not be reissued by the Company. Upon such automatic conversion, any unpaid Series A Dividends and any other accrued and unpaid dividends on the Series A Preferred shall be paid in accordance with the provisions of Subsection 4(d).

(ii) The Company shall send to all holders of record of shares of the Series A Preferred written notice of the Automatic Conversion Time and the place designated for mandatory conversion of all such shares of the Series A Preferred pursuant to this Subsection 4(m). The Company need not send such notice in advance of the occurrence of the Automatic Conversion Time. Upon receipt of such notice, each holder of shares of the Series A Preferred shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Company to indemnify the Company against any claim that may be made against the Company on account of the alleged loss, theft or destruction of such certificate) to the Company at the place designated in such notice, and shall thereafter receive a certificate or certificates for the number of shares of the Common Stock to which such holder is entitled pursuant to this Subsection 4(m).

(iii) All shares of the Series A Preferred shall, from and after the Automatic Conversion Time, no longer be deemed to be outstanding and, notwithstanding the failure of the holder or holders thereof to surrender the certificates for such shares on or prior to such time, all rights with respect to such shares shall immediately cease and terminate at the Automatic Conversion Time, except only the right of the holders thereof to receive shares of the Common Stock in exchange therefor and to receive payment of any dividends declared but unpaid thereon. Such converted shares of the Series A Preferred shall be retired and cancelled and may not be reissued as shares of such series, and the Company may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of the Series A Preferred accordingly.

(n) Fractional Shares. No fractional shares of the Common Stock shall be issued upon conversion of the Series A Preferred. All shares of the Common Stock (including fractions thereof) issuable upon conversion of more than one share of the Series A Preferred by a holder thereof shall be aggregated for purposes of determining whether the conversion would result in the issuance of any fractional share. If, after the aforementioned aggregation, the conversion would result in the issuance of any fractional share, the Company will round up to the next whole share.

(o) Reservation of Stock Issuable Upon Conversion. The Company shall at all times reserve and keep available out of its authorized but unissued shares of the Common Stock, solely for the purpose of effecting the conversion of the shares of the Series A Preferred, such number of its shares of the Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding shares of the Series A Preferred. If at any time the number of authorized but unissued shares of the Common Stock shall not be sufficient to effect the conversion of all then-outstanding shares of the Series A Preferred, the Company will take such corporate action as may, in the opinion of its legal counsel, be necessary to increase its authorized but unissued shares of the Common Stock to such number of shares as shall be sufficient for such purpose.

(p) Payment of Taxes. The Company will pay all taxes (other than taxes based upon income) and other governmental charges that may be imposed with respect to the issue or delivery of shares of the Common Stock upon conversion of shares of the Series A Preferred, excluding any tax or other charge imposed in connection with any transfer involved in the issue and delivery of shares of the Common Stock in a name other than that in which the shares of the Series A Preferred so converted were registered.

5. REDEMPTION.

(a) At any time on or after December 31, 2020, the holders of at least eighty percent (80%) of the then-outstanding shares of the Series A Preferred, voting as a separate class, may require the Company, to the extent it may lawfully do so, to redeem all the outstanding shares of the Series A Preferred (the ***"Series A Redemption Election"***). The Company shall effect any such redemption in three (3) annual installments with the first to occur on the date sixty (60) days after the date on which the Company receives notice of the Series A

Redemption Election (each a ***"Redemption Date"***), by paying in cash therefore a redemption price equal to the greater of:

(i) 150% of the Series A Liquidation Preference; or

(ii) the Fair Market Value of the Series A Preferred (as herein defined) per share plus all declared but unpaid Series A Dividends (the ***"Series A Redemption Price"***).

(b) On each Redemption Date, the Company shall pay the Series A Redemption Price to the holders of the Series A Preferred for each share of the Series A Preferred to be redeemed on such Redemption Date.

(c) Shares subject to redemption pursuant to this Section 5 shall be redeemed from each holder of shares of the Series A Preferred on a pro rata basis, based on the total number of shares of the Series A Preferred. If the Company does not have sufficient funds available to legally redeem all shares to be redeemed on such Redemption Date (including, if applicable, those to be redeemed at the option of the Company), then it shall redeem such shares of the Series A Preferred first pro rata (based on the portion of the Aggregate Redemption Price (as defined below) payable to them) to the extent possible, and then shall redeem the remaining shares of the Series A Preferred as soon as sufficient funds are legally available.

(d) In the event that the Company fails or is unable under applicable law to pay the aggregate amount to be paid to all holders of the Series A Preferred upon the applicable Redemption Date (the ***"Aggregate Redemption Price"***), the Company shall, at its sole cost and expense, engage an investment banking firm selected and approved by the Board to the end of selling the assets of the Company at the highest possible price for the purpose of paying any balance of the Aggregate Redemption Price. The Company shall use commercially reasonable efforts to do so as soon as practicable.

(e) On or prior to a Redemption Date, the Company shall deposit the Aggregate Redemption Price payable on such Redemption Date with a bank or trust company, as a trust fund, with irrevocable instructions and authority to the bank or trust company to pay, on and after such Redemption Date, the Series A Redemption Price for the shares to the holders of the Series A Preferred upon the surrender of their share certificates. Any moneys deposited by the Company pursuant to this Subsection 5(e) for the redemption of shares thereafter converted into shares of the Common Stock pursuant to Subsection 4(a) above no later than the applicable Redemption Date, shall be returned to the Company forthwith upon such conversion. The balance of any funds deposited by the Company pursuant to this Subsection 5(e) remaining unclaimed at the expiration of one (1) year following such Redemption Date shall be returned to the Company promptly upon its written request.

(f) On or after the applicable Redemption Date, each holder of shares of the Series A Preferred to be redeemed shall surrender such holder's certificates representing such shares to the Company in the manner and at the place designated in the Redemption Notice,

and thereupon the Series A Redemption Price shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof and each surrendered certificate shall be canceled. In the event less than all of the shares represented by such certificates are redeemed, a new certificate shall be issued representing the unredeemed shares. From and after each Redemption Date, unless there shall have been a default in payment of any of the Series A Redemption Price, or the Company is unable to pay the Series A Redemption Price payable upon such Redemption Date due to not having sufficient legally available funds, all rights of the holder of such shares as holder of the Series A Preferred (except the right to receive the Series A Redemption Price without interest upon surrender of their certificates), shall cease and terminate with respect to such shares; *provided* that in the event that shares of the Series A Preferred are not redeemed due to a default in payment by the Company or because the Company does not have sufficient legally available funds, such shares of the Series A Preferred shall remain outstanding and shall be entitled to all of the rights and preferences provided herein.

(g) In the event the Company receives the Redemption Notice, the Conversion Rights (as defined in the Subsection 4 above) for such Series A Preferred shall terminate as to the shares designated for redemption at the close of business on each Redemption Date, unless default is made in payment of the Series A Redemption Price for the shares to be redeemed on such Redemption Date.

6. NOTICES. Any notice required by the provisions of this Article IV shall be in writing and shall be deemed effectively given: (i) upon personal delivery to the party to be notified, (ii) when sent by confirmed electronic mail or facsimile if sent during normal business hours of the recipient; if not,

then on the next business day, (iii) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (iv) one (1) business day after deposit with a nationally recognized overnight courier, specifying next day delivery, with verification of receipt. All notices shall be addressed to each holder of record at the address of such holder appearing on the books of the Company.

7. WAIVER. Any of the rights, powers, preferences and other terms of the Series A Preferred set forth herein may be waived on behalf of all holders of the Series A Preferred by the affirmative written consent or vote of the holders of at least a majority of the shares of the Series A Preferred then outstanding.

D. The rights, preferences, privileges, restrictions and other matters relating to the Common Stock are as follows:

1. Relative Rights of Series A Preferred and Common Stock. All preferences, voting powers, relative, participating, optional or other special rights and privileges, and qualifications, limitations, or restrictions of the Common Stock are expressly made subject to and subordinate to those that may be fixed with respect to any shares of the Series A Preferred.

2. Voting Rights. Except as otherwise required by law or the Company's certificate of incorporation, each holder of the Common Stock shall have one vote in respect of

each share of stock held by such holder of record on the books of the Company for the election of directors and all matters submitted to a vote of stockholders of the Company.

Notwithstanding the provisions of Section 242(b)(2) of the DGCL, but without limitation of and subject to the provisions of Section 2 of Article IV, Part C hereof, the number of authorized shares of the Common Stock may be increased or decreased (but not below the number of shares of the Common Stock then outstanding) by the affirmative vote of the holders of at least a majority of the Common Stock and the Series A Preferred (voting together as a single class on an as-converted basis), and the holders of the Common Stock shall not be entitled to a separate class vote with respect thereto.

V.

A. The liability of the directors of the Company for monetary damages shall be eliminated to the fullest extent permitted by applicable law.

B. Any repeal or modification of this Article V shall only be prospective and shall not affect the rights under this Article V in effect at the time of the alleged occurrence of any action or omission to act giving rise to liability.

VI.

A. The management of the business and the conduct of the affairs of the Company shall be vested in its Board. The number of directors that shall constitute the whole Board shall be fixed by the Board in the manner provided herein and in the Company's bylaws.

B. Election of directors need not be by written ballot unless the Bylaws of the Company so provide.

C. The Board is expressly empowered to adopt, amend or repeal the bylaws of the Company in compliance with the bylaws of the Company.

VII.

To the maximum extent permitted from time to time under the laws of the State of Delaware, the Company shall indemnify and upon request shall advance expenses to any person who is or was a party or is threatened to be made a party to any threatened, pending or completed action, suit, proceeding or claim, whether civil, criminal, administrative or investigative, by reason of the fact that he is or was or has agreed to be a director or officer of the Company or while a director or officer is or was serving at the request of the Company as a director, officer, partner, trustee, employee or agent of any corporation, partnership, joint venture, trust or other enterprise, including service with respect to employee benefit plans, against any and all expenses (including attorney's fees and expenses), judgments, fines, penalties and amounts paid in settlement or incurred in connection with the investigation, preparation to defend or defense of such action, suit, proceeding or claim; *provided, however*, that the foregoing shall not require the

Company to indemnify or advance expenses to any person in connection with any action, suit, proceeding, claim or counterclaim initiated by or on behalf of such person. Such indemnification shall not be exclusive of other indemnification rights arising under any bylaw, agreement, vote of directors or stockholders or otherwise and shall inure to the benefit of the heirs and legal representatives of such person. No amendment or repeal of this Article VII shall apply to or adversely affect any right or protection of a director or officer of the Company with respect to any act or omission of such director occurring prior to such amendment or repeal.

VIII.

The Company reserves the right to amend or repeal any provision contained in the Company's certificate of incorporation, in the manner now or hereafter prescribed by statute, and all rights conferred upon a stockholder herein are granted subject to this reservation.

* * * *

FOUR: This Second Amended and Restated Certificate of Incorporation has been duly approved by the Board of Directors of the Company.

FIVE: This Second Amended and Restated Certificate of Incorporation has been duly adopted in accordance with the provisions of Sections 242 and 245 of the DGCL by the stockholders of the Company and was approved by written consent of the stockholders of the Company in accordance with the provisions of Section 228 of the DGCL.

IN WITNESS WHEREOF, the Company has caused this Second Amended and Restated Certificate of Incorporation to be signed by its President and CEO this 26 day of April, 2016.

GEMPHIRE THERAPEUTICS INC.

By: /s/ Mina Sooch
Mina Sooch
Its: President and CEO

SIGNATURE PAGE TO SECOND AMENDED AND RESTATED CERTIFICATE OF INCORPORATION
OF GEMPHIRE THERAPEUTICS INC.

State of Delaware
Secretary of State
Division of Corporations
Delivered 10:50 AM 04/27/2016
FILED 10:50 AM 04/27/2016
SR 20162603348 - File Number 5630769

CERTIFICATE OF AMENDMENT
TO THE
SECOND AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
GEMPHIRE THERAPEUTICS INC.

The undersigned officer of GEMPHIRE THERAPEUTICS INC., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the ***"Company"***),

DOES HEREBY CERTIFY:

1. The Company was incorporated under the name Gemphire Therapeutics Inc. pursuant to an original Certificate of Incorporation filed with the Secretary 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 and the Certificate of Incorporation was further amended by the First Amended and Restated Certificate of Incorporation filed with the Delaware Secretary on March 31, 2015, and was further amended by the Second Amended and Restated Certificate of Incorporation filed with the Delaware Secretary on April 26, 2016 (collectively, the ***"Certificate of Incorporation"***).

2. That the Board of Directors of the Company has approved the following amendment to the Certificate of Incorporation:

"RESOLVED, that Paragraph B of Article IV. of the Certificate of Incorporation is deleted in its entirety and amended to read as follows:

"B. Upon the filing of this Certificate of Amendment to Second Amended and Restated Certificate of Incorporation with the Delaware Secretary (the ***"Effective Time"***), every 3.119 shares of the Company's Common Stock and Preferred Stock, issued and outstanding immediately prior to the Effective Time will be combined into and automatically, without any further action by the Company or the stockholders thereof, become one (1) validly issued, fully paid and non-assessable outstanding share of Common Stock and Preferred Stock, respectively, subject to the treatment of fractional share interests as described below (the ***"Reverse Stock Split"***). No certificates representing fractional shares shall be issued in connection with the Reverse Stock Split. All shares (including fractions thereof) issuable upon the Reverse Stock Split to a given holder with respect to Common Stock or Preferred Stock, as the case may be, shall be aggregated for purposes of determining whether the Reverse Stock Split would result in the issuance of a fractional share of Common Stock or Preferred Stock. If, after the aforementioned aggregation, the Reverse Stock Split would result in the issuance of a fraction of a share of Common Stock or Preferred Stock, the Company shall, in lieu of issuing any such fractional share, round up to the nearest whole number of shares in order to bring the number of shares held by such holder up to the next whole number of shares of Common Stock or Preferred Stock, as the case may be. The Reverse Stock Split shall

occur automatically without any further action by the holders of Common Stock or Preferred Stock, and whether or not the certificates representing such shares have been surrendered to the Company; *provided, however,* that the Company shall not be obligated to issue certificates evidencing the shares of Common Stock or Preferred Stock issuable as a result of the Reverse Stock Split unless the existing certificates evidencing the applicable shares of stock prior to the Reverse Stock Split are either delivered to the Company, or the holder notifies the Company that such certificates have been lost, stolen or destroyed, and executes an agreement satisfactory to the Company to indemnify the Company from any loss incurred by it in connection with such certificates."

3. That the foregoing amendment was approved in accordance with Sections 242 and 245 of the DGCL.

4. The foregoing amendment shall be effective upon filing with the Delaware Secretary.

IN WITNESS WHEREOF, the Company has caused this Certificate of Amendment to be signed by its duly authorized officer, this 27th day of April, 2016.

GEMPHIRE THERAPEUTICS INC.

By: /s/ Mina Sooch
Name: Mina Sooch
Title: Chief Executive Officer and President

THIRD AMENDED AND RESTATED CERTIFICATE OF INCORPORATION OF GEMPHIRE THERAPEUTICS INC.

The undersigned, for the purpose of amending and restating the Amended and Restated Certificate of Incorporation of GEMPHIRE THERAPEUTICS INC., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the ***"Corporation"***), hereby certifies that:

ONE: The Corporation was incorporated under the name Gemphire Therapeutics Inc. pursuant to an original Certificate of Incorporation filed with the Secretary 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, and 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 (collectively, the ***"Certificate of Incorporation"***).

TWO: The Certificate of Incorporation is hereby amended and restated to read as follows:

ARTICLE I
NAME

The name of the corporation is GEMPHIRE THERAPEUTICS INC.

ARTICLE II
REGISTERED OFFICE AND REGISTERED AGENT

The address of the Corporation's registered office in the State of Delaware is Corporation Trust Center, 108 West 13th Street, City of Wilmington, County of New Castle, 19801. The name of the Corporation's registered agent in the State of Delaware at such address is Business Filings Incorporated.

ARTICLE III
PURPOSE

The purpose of the Corporation is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law of the State of Delaware (the ***"DGCL"***).

ARTICLE IV
AUTHORIZED STOCK AND RELATIVE RIGHTS

A. The Corporation is authorized to issue two classes of stock to be designated, respectively, ***"Common Stock"*** and ***"Preferred Stock"***. The total number of shares that the Corporation is authorized to issue is 110,000,000 shares. 100,000,000 shares shall be Common Stock and 10,000,000 shares shall be Preferred Stock, each having a par value of $0.001 per share.

B. The Preferred Stock may be issued from time to time in one or more series. The Board of Directors of the Corporation (the ***"Board of Directors"***) is hereby expressly authorized to provide for the issue of any or all of the unissued and undesignated shares of the Preferred Stock in one or more series, and to fix the number of shares 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, as shall be stated and expressed in the resolution or resolutions adopted by the Board of Directors providing for the issuance of such shares and as may be permitted by the DGCL. The Board of Directors is also expressly authorized to increase or decrease the number of shares of any series subsequent to the issuance of shares of that series, but not below the number of shares of such series then outstanding. In case the number of shares of any series shall be decreased in accordance with the foregoing sentence, the shares constituting such decrease shall resume the status they had prior to the adoption of the resolution originally fixing the number of shares of such series. The number of authorized shares of Preferred Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the Common Stock, without a vote of the holders of the Preferred Stock, or of any series thereof, unless a vote of any such holders is required pursuant to the terms of any certificate of designation filed with respect to any series of Preferred Stock.

C. Each outstanding share of Common Stock shall entitle the holder thereof to one vote on each matter properly submitted to the stockholders of the Corporation for their vote; *provided*, *however*, that, except as otherwise required by law, holders of Common Stock shall not be entitled to vote on any amendment to this Third Amended and Restated Certificate of Incorporation (including any certificate of designation filed with respect to any series of Preferred Stock) that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together as a class with the holders of one or more other such series, to vote thereon by law or pursuant to this Third Amended and Restated Certificate of Incorporation (including any certificate of designation filed with respect to any series of Preferred Stock).

ARTICLE V
MANAGEMENT

For the management of the business and for the conduct of the affairs of the Corporation, and in further definition, limitation and regulation of the powers of the Corporation, of its directors and of its stockholders or any class thereof, as the case may be, it is further provided that:

A. BOARD OF DIRECTORS.

1. Number. The management of the business and the conduct of the affairs of the Corporation shall be vested in its Board of Directors. The number of directors which shall constitute the Board of Directors shall be fixed exclusively by resolutions adopted by a majority of the authorized number of directors constituting the Board of Directors.

2. Classes. Subject to the rights of the holders of any series of Preferred Stock to elect additional directors under specified circumstances, the directors shall be divided into three classes designated as Class I, Class II and Class III, respectively, each class to contain as near as possible to one-third of the total number of directors, and, except as required by law, in the case of any increase or decrease in the number of directors, such increase or decrease shall be apportioned among the classes of directors so as to maintain each class as near as possible to one-third of the total number of directors as so increased or decreased. The Board of Directors is authorized to assign members of the Board of Directors already in office to such classes at the time the classification becomes effective. At the first annual meeting of stockholders following the closing of the initial public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock to the public (the "***Initial Public Offering***"), the term of office of the Class I directors shall expire and Class I directors shall be elected for a full term of three years. At the second annual meeting of stockholders following the Initial Public Offering, the term of office of the Class II directors shall expire and Class II directors shall be elected for a full term of three years. At the third annual meeting of stockholders following the Initial Public Offering, the term of office of the Class III directors shall expire and Class III directors shall be elected for a full term of three years. At each succeeding annual meeting of stockholders, directors shall be elected for a full term of three years to succeed the directors of the class whose terms expire at such annual meeting.

3. Term. Notwithstanding the foregoing provisions of this Section, each director shall serve until his successor is duly elected and qualified or until his earlier death, resignation or removal. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

4. Removal of Directors.

(i) Subject to the rights of the holders of any series of Preferred Stock that may be designated from time to time to elect additional directors under specified circumstances, neither the Board of Directors nor any individual director may be removed without cause.

(ii) Except for such additional directors, if any, as elected by the holders of any series of Preferred Stock, and subject to any limitation imposed by law, any individual director or directors may be removed with cause only by the affirmative vote of the holders of at least 66-2/3% of the voting power of all then outstanding shares of capital stock of the Corporation entitled to vote generally at an election of directors, voting together as a single class.

5. Vacancies. Subject to the rights of the holders of any series of Preferred Stock, any vacancies on the Board of Directors resulting from death, resignation, retirement, disqualification, removal or other causes and any newly created directorships resulting from any increase in the number of directors shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by the stockholders, be filled only by the affirmative vote of a majority of the directors then in office, even if less than a quorum of the Board of Directors, or by a sole remaining director, and not by the stockholders; *provided, however*, that whenever the holders of any class or classes of stock or series thereof are entitled to elect one or more directors by the provisions of this Third Amended and Restated Certificate of Incorporation, as it may be amended from time to time, vacancies and newly created directorships of such class or classes or series shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by the stockholders and except as otherwise provided by applicable law, be filled only by the affirmative vote of a majority of the directors even though less than a quorum of the Board of Directors, and not by the stockholders. Any director elected in accordance with the preceding sentence shall hold office for the remainder of the full term of the director for which the vacancy was created or occurred and until such director's successor shall have been elected and qualified.

B. BYLAW AMENDMENTS.

1. In furtherance and not in limitation of the powers conferred by statute, the Board of Directors is expressly empowered to adopt, amend or repeal the Bylaws of the Corporation. Any adoption, amendment or repeal of the Bylaws of the Corporation by the Board of Directors shall require the approval of a majority of the authorized number of directors.

2. The stockholders shall also have the power to adopt, amend or repeal the Bylaws of the Corporation; *provided, however*, that, in addition to any vote of the holders of any class or series of stock of the Corporation required by law or by this Third Amended and Restated Certificate of Incorporation (including any certificate of designation filed with respect to any series of Preferred Stock), such action by stockholders shall require the affirmative vote of the holders of at least 66-2/3% of the voting power of all then outstanding shares of capital stock of the Corporation entitled to vote generally at an election of directors, voting together as a single class.

C. BALLOTS. The directors of the Corporation need not be elected by written ballot unless the Bylaws of the Corporation so provide.

D. ACTION BY STOCKHOLDERS. No action shall be taken by the stockholders of the Corporation except at an annual or special meeting of stockholders called in accordance with the

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Bylaws. No action shall be taken by the stockholders of the Corporation by written consent or electronic transmission.

E. ADVANCE NOTICE. Advance notice of stockholder nominations for the election of directors and of business to be brought by stockholders before any meeting of the stockholders of the Corporation shall be given in the manner provided in the Bylaws of the Corporation.

ARTICLE VI
PERSONAL LIABILITY OF DIRECTORS AND INDEMNIFICATION

A. The liability of the directors for monetary damages shall be eliminated to the fullest extent under applicable law. If applicable law is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated to the fullest extent permitted by applicable law, as so amended.

B. To the fullest extent permitted by applicable law, the Corporation is authorized to provide indemnification of (and advancement of expenses to) directors, officers and agents of the Corporation (and any other persons to which applicable law permits the Corporation to provide indemnification) through Bylaw provisions, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise in excess of the indemnification and advancement otherwise permitted by such applicable law.

C. Any repeal or modification of this Article VI shall be prospective and shall not affect the rights under this Article VI in effect at the time of the alleged occurrence of any act or omission to act giving rise to liability or indemnification.

ARTICLE VII
AMENDMENT

A. The Corporation reserves the right to amend, alter, change or repeal any provision contained in this Third Amended and Restated Certificate of Incorporation, in the manner now or hereafter prescribed by statute, except as provided in Section B of this Article VII, and all rights conferred upon the stockholders herein are granted subject to this reservation.

B. Notwithstanding any other provisions of this Third Amended and Restated 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 Corporation required by law or by this Third Amended and Restated Certificate of Incorporation (including any certificate of designation filed with respect to any series of Preferred Stock), the affirmative vote of the holders of at least 66-2/3% of the voting power of all then outstanding shares of capital stock of the Corporation entitled to vote generally at an election of directors, voting together as a single class, shall be required to alter, amend or repeal Articles V, VI, and VII.

* * * * * *

THREE: This Third Amended and Restated Certificate of Incorporation has been duly adopted by the Corporation's Board of Directors and stockholders in accordance with Sections 242 and 245 of the DGCL, with the approval of the Corporation's stockholders having been given by written consent without a meeting in accordance with Section 228 of the DGCL.

IN WITNESS WHEREOF, the Corporation has caused this Third Amended and Restated Certificate of Incorporation to be signed by its President and Chief Executive Officer this day of , 2016.

GEMPHIRE THERAPEUTICS INC.

By: _____
Mina P. Sooch
Chief Executive Officer and President

Exhibit 3.3

BYLAWS OF
GEMPHIRE THERAPEUTICS INC.

ARTICLE I. PRINCIPAL OFFICE

1.1 Office: The address of the principal office of the Corporation shall be 43334 Seven Mile Road, Suite 1000, Northville, Michigan 48167. The Corporation may have other offices, either within or outside of the State of incorporation as the Board of Directors may designate or as the business of Corporation may require.

ARTICLE II. SHAREHOLDERS

2.1 Place of Meetings: The meetings of the Shareholders of the Corporation ("Shareholders") shall be held at such place, as may be fixed by the Board of Directors.

2.2 Annual Meetings: The annual meeting of the Shareholders shall be held each year at a location determined by the Directors and as may be designated in the notice of that meeting, for the purpose of electing Directors and transacting any other business that may come before the meeting.

2.3 Special Meetings: A special meeting, other than those regulated by statute, of the Shareholders for any purpose or purposes may be called at any time by the Chairman, the Chief Executive Officer, President, by a majority of the Board of Directors, or by Shareholders together holding at least fifty-one percent of the number of shares of the Corporation at the time outstanding and entitled to vote with respect to the business to be transacted at such meeting. At a special meeting no other business shall be transacted and no corporate action shall be taken other than that stated in the notice of the meeting.

2.4 Notice of Meetings: Written or printed stating the place, day, and hour of every meeting of the Shareholders and, in case of a special meeting, the purpose or purposes for which the meeting is called, shall be mailed or electronically communicated not less than seven (7) days nor more than sixty (60) days before the date of the meeting to each Shareholder of record entitled to vote at such meeting, to his or her street or electronic address as it appears in the share transfer books of the Corporation. If mailed, notice shall be deemed to be delivered when deposited in the United States mail, and electronic communication will be deemed delivered at the time the electronic communication is sent. Such further notice shall be given as may be required by law, but meetings may be held without notice if all the Shareholders entitled to vote at the meeting are present in person or by proxy or if notice is waived in writing by those not present, either before or after the meeting.

Notice of special meetings shall also state the purpose or purposes for which the meeting is called, and indicate that it is being issued by, or at the direction of, the person(s) calling the meeting.

2.5 Quorum: Any number of Shareholders together holding at least a majority of the outstanding shares of capital stock entitled to vote with respect to the business to be transacted, who shall be present in person, via phone or represented by proxy at any meeting duly called, shall constitute a quorum for the transaction of business. If less than a quorum shall be in attendance at the time for which a meeting shall have been called, the meeting may be adjourned by a

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majority of the Shareholders present or represented by proxy without notice other than by announcement at the meeting.

2.6 Voting: At any meeting of the Shareholders, each Shareholder of a class entitled to vote on any matter coming before the meeting shall have one vote in person or by proxy for each share of capital stock of such class standing in his or her name on the books of the Corporation on the date, at least seven (7) days prior to such meeting, fixed by the Board of Directors as the record date for the purpose of determining Shareholders entitled to vote pursuant to Section 5.5 below. Every proxy shall be in writing, dated, and signed by the Shareholder entitled to vote or his or her duly authorized attorney-in-fact. The proxy shall be exhibited to the Secretary at the meeting and shall be filed with the records of the Corporation.

2.7 Order of Business: The order of business at all meetings of Shareholders shall be as decided by the Board through an agenda provided before each meeting.

2.8 Informal Action by Shareholders: Unless otherwise provided by law, any action required to be taken at a meeting of Shareholders, or other action which may be taken at a meeting of the Shareholders, may be taken without a meeting if the Shareholders give unanimous written consent setting forth the action to be taken and signed by all Shareholders entitled to vote on the action. Any written resolution signed by all of the Shareholders entitled to vote shall be to the effect therein expressed, with the same force and effect as if the same had been duly passed by unanimous vote at a duly called meeting of Shareholders. The signed resolution shall be kept with the meeting minutes under the proper date.

ARTICLE III. BOARD OF DIRECTORS

3.1 General Powers: The property, business, and affairs of the Corporation shall be managed and controlled under the direction of its Board of Directors (the "Board" and the members of which are referred to herein as "Directors"), and, except as otherwise expressly provided by law, the Articles of Incorporation or these Bylaws, all of the powers of the Corporation shall be vested in such Board. Such management and general control will be by majority vote of the Board, with each Director having equal vote.

3.2 Number of Directors: The number of Directors constituting the Board shall be five (5).

3.3 Election and Removal of Directors: Directors shall be elected at each annual meeting of Shareholders to succeed those Directors whose terms have expired, and to fill any existing vacancies.

a) Directors shall hold their offices for a term of one year and until their successors are elected, or their prior death, resignation, or removal. Any Director may be removed from office at a meeting called expressly for that purpose by the vote of Shareholders holding not less than a majority of the shares entitled to vote at an election of Directors.

b) Any vacancy occurring in the Board may be filled by the affirmative vote of the majority of the remaining Directors, though less than a quorum of the Board, and the term of office of any Director so elected shall expire at the next Shareholders meeting at which Directors are elected.

3.4 Quorum: All Directors fixed in accordance with Section 3.2 of these Bylaws shall constitute a quorum for the transaction of business. The act of a majority of Directors shall be the act of the

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Board. If less than all of the board is present at a meeting, the majority of those present may adjourn the meeting without further notice.

3.5 Annual Meetings of Directors: An annual meeting of the Board shall be held without notice, other than this Bylaw, immediately after, and at the same place as, the annual meeting of Shareholders.

3.6 Special Meetings of Directors: Special meetings of Directors may be called at the request of the Chief Executive Officer, Chairman, other duly authorized Officer, or any two Directors. The person or persons authorized to call special meetings of Directors may designate the place and time for holding any special meeting of Directors.

3.7 Notice of Special Meeting; Notice of any special meeting shall be given at least three (3) days before the date of the meeting by written notice delivered personally, mailed to each Director at his or her address of record with the Corporation or by electronic communication. If mailed, notice is deemed to delivered when deposited in the United States mail, and electronic communication will be deemed delivered at the time the electronic communication is sent. The attendance of a Director at a meeting shall be deemed to be a waiver of notice of such meeting unless the Director attends the meeting for the express purpose of objecting to the transaction of business at the meeting because the meeting is not properly called or convened. Meetings may be held at any time without notice if all of the Directors are present, or if those not present waive notice in writing either before or after the meeting.

3.8 Compensation: By resolution of the Board, Directors may be allowed a fee and expenses for attendance at all meetings, but nothing herein shall preclude Directors from serving the Corporation in other capacities and receiving compensation for such other services.

3.9 Manner of Acting: The act of the majority of the Directors present at a meeting at which a quorum is present shall be the act of the Directors.

3.10 Electronic Meetings: Members of the Board may participate in regular or special meetings by, or through the use of, any means of communication allowing all participants to simultaneously hear each other, such as teleconference or videoconference. If a meeting is conducted by such means, the presiding Officer shall inform all participating Directors at the commencement of such meeting that a meeting is taking place at which official business may be transacted. Any participant in a meeting by such means shall be deemed present in person at such meeting.

3.11 Executive and Other Committees: The Board may designate committees made up of Directors from time to time as the Directors see fit. The purposes for which the committees are formed are to be designated by the Board. The committees may be dissolved by affirmative vote of the Board. A committee may be authorized to exercise the authority of the Board, except that a committee may not do the following:

a) Authorize distributions
b) Fill vacancies on the Board
c) Amend the Corporation's Articles of Incorporation
d) Adopt, amend, or repeal these Bylaws
e) Approve a plan of a merger not requiring Shareholder approval
f) Authorize or approve issuance or reacquisition of shares, except according to a method already prescribed by the Board

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g) Sell, license, lease or otherwise dispose of the intellectual property of the Corporation
h) Dissolve the Corporation

3.12 Informal Action by Directors: Unless otherwise provided by law, any action required to be taken at a meeting of Directors, or other action which may be taken at a meeting of the Directors, may be taken without a meeting if the Directors give unanimous written consent setting forth the action to be taken and signed by all Directors entitled to vote on the action.

3.13 Certain Transactions: A transaction in which a Director is determined to have an interest shall not, because of the interest, be enjoined, set aside, or give rise to an award of damages or other sanctions, in a proceeding by a Shareholder or by or in the right of the Corporation, if the person interested in the transaction provides notice to the Board and a majority of the Shareholders of the proposed transaction and their financial interest in the transaction, and such Director recuses themselves from voting on the proposed transaction as either a Director or a Shareholder.

ARTICLE IV. OFFICERS

4.1 Election of Officers; Terms: The Officers of the Corporation shall consist of a President, a Secretary, and a Treasurer. Other Officers, including a Chairman of the Board, Chief Executive Officer, Chief Financial Officer, Chief Legal Officer, Chief Operations Officer, one or more Vice Presidents, and assistant and subordinate Officers, may from time to time be elected by the Board. All Officers shall hold office until the next annual meeting of the Board and until their successors are elected. Unless prohibited by State law, any two or more offices may be combined in the same person as the Board may determine.

4.2 Removal of Officers; Vacancies: Any Officer of the Corporation may be removed summarily with or without cause, at any time, by the Board. Vacancies may be filled by the Board.

4.3 Resignations: Any Officer may resign at any time by delivering notice to the Corporation that complies with State law. The resignation shall be effective when the notice is delivered, unless the notice specifies a later effective date and the Corporation accepts the later effective date.

4.4 Duties: The Officers of the Corporation shall have such duties as generally pertain to their respective offices as well as such powers and duties as are prescribed by law or are hereinafter provided or as shall be conferred by the Board.

4.4.1 Duties of the President: Unless otherwise defined by the Board, the President shall be the Chief Executive Officer of the Corporation and shall be primarily responsible for the implementation of policies of the Board and shall have authority over the general management and direction of the business and operations of the Corporation and its divisions, if any, subject only to the ultimate authority of the Board. The President shall preside at all corporate meetings. The President may sign and execute, in the name of the Corporation, share certificates, deeds, mortgages, bonds, contracts, or other instruments, except in cases where the

signing and the execution thereof shall be expressly delegated by the Board or by these Bylaws to some other Officer or agent of the Corporation or shall be required by law otherwise to be signed or executed. In addition, the President shall perform all duties incident to the office of the President and such other duties as may be assigned by the Board.

4.4.2 Duties of the Vice President(s): Each Vice President, if any, shall have such powers and duties as may be assigned to him or her by the President or the Board. Any Vice President may

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sign and execute, in the name of the Corporation, deeds, mortgages, bonds, contracts, or other instruments authorized by the Board, except where the signing and execution thereof shall be expressly delegated by the Board or the President to some other Officer or agent of the Corporation, or shall be required by law or otherwise to be signed or executed.

4.4.3 Duties of the Treasurer: The Treasurer shall have charge of and be responsible for all funds, securities, receipts, and disbursements of the Corporation, and shall deposit all monies and securities of the Corporation in such banks and depositories as shall be designated by the Board. The Treasurer shall be responsible for maintaining adequate financial accounts and records in accordance with generally accepted accounting practices; preparing appropriate operating budgets and financial statements; preparing and filing all tax returns required by law; and performing all duties incident to the office of Treasurer, and such other duties as may be assigned to him or her by the Board, the Finance Committee, or the President. The Treasurer may sign and execute in the name of the Corporation share certificates, deeds, mortgages, bonds, contracts, or other instruments, except in cases where the signing and the execution thereof shall be expressly delegated by the Board or by these Bylaws to some other Officer or agent of the Corporation or shall be required by law or otherwise to be signed or executed.

4.4.4 Duties of the Secretary: The Secretary shall act as Secretary of all meetings of the Shareholders of the Corporation and, when requested, shall also act as Secretary of the meetings of the committees of the Board. The Secretary shall keep and preserve the minutes of all such meetings in permanent books; see that all notices required to be given by the Corporation are duly given and served; have custody of the seal of the Corporation and shall affix the seal or cause it to be affixed to all share certificates of the Corporation and to all documents the execution of which on behalf of the Corporation under its corporate seal is duly authorized in accordance with law or the provisions of these Bylaws. The Secretary shall have custody of all deeds, leases, contracts, and other important corporate documents; have charge of the books, records, and papers of the Corporation relating to its organization and management as a Corporation; see that all reports, statements, and other documents required by law (except tax returns) are properly filed; and in general perform all the duties incident to the office of Secretary, and such other duties as may be assigned by the Board or the President. The Secretary may designate such subordinate Officers or administrative personnel as desirable, including Assistant Secretary, with the consent of the Board to carry out the duties of the office.

4.5 Compensation: The Board shall have authority to fix the compensation of all Officers of the Corporation.

ARTICLE V. CAPITAL STOCK

5.1 Certificates: Certificates shall represent the interest of each Shareholder of the Corporation. They shall be numbered and entered in the books of the Corporation as they are issued. They shall exhibit the holder’s name and the number of shares, and shall be signed by the President or a Vice President, and the Treasurer or the Secretary, and shall bear the corporate seal.

5.2 Lost, Destroyed, and Mutilated Certificates: Holders of the shares of the Corporation shall immediately notify the Corporation of any loss, destruction, or mutilation of the certificate thereof, and the Board may in its discretion cause new certificates for the same number of shares to be issued to such Shareholder upon the surrender of the mutilated certificate or upon satisfactory proof of such loss or destruction.

5.3 Transfer of Shares: The shares of the Corporation shall be transferable or assignable only on the books of the Corporation by the holder in person or by attorney on surrender of the certificate for such shares duly endorsed and, if sought to be transferred by attorney, accompanied by a written power of attorney to have the same transferred on the books of the Corporation. The Corporation will recognize, however, the exclusive right of the person registered on its books as the owner of shares to receive dividends and to vote as such owner.

5.4 Consideration for Shares: The Board may authorize shares to be issued for consideration consisting of any tangible or intangible property or benefit to the Corporation, including cash, promissory notes, services performed, contracts for services to be performed or other securities of the Corporation. Before the Corporation issues shares, the Board shall determine that the consideration received or to be received for the shares is adequate.

5.5 Fixing Record Date: For the purpose of determining Shareholders entitled to notice of or to vote at any meeting of Shareholders or any adjournment thereof, or entitled to receive a dividend payment, or in order to make a determination of Shareholders for any other proper purpose, the Board may fix in advance a date as the record date for any such determination of Shareholders. Such date may not be more than ten (10) days prior to the date on which the particular action, requiring the determination of Shareholders, is to be taken. If no record date is designated for the determination of Shareholders entitled to notice of a meeting of Shareholders or to vote at a meeting of Shareholders, or Shareholders entitled to receive payment of a dividend, the date on which notices of the meeting are mailed or the date on which the resolution of the declaring such dividend is adopted, as the case may be, shall be the record date for such determination of Shareholders. When a determination of Shareholders entitled to vote at any meeting of Shareholders has been made as provided in this section, such determination shall apply to any adjournment thereof.

ARTICLE VI. INDEMNIFICATION

6.1 Indemnification: The Corporation shall indemnify each of its Directors, Officers, and employees whether or not then in service as such, against all reasonable expenses actually and necessarily incurred by him or her in connection with the defense or any litigation to which the individual may have been made a party because he or she is or was a Director, Officer, or employee of the Corporation. The individual shall have no right to reimbursement, however, in relation to matters as to which he or she has been adjudged liable to the Corporation for negligence or misconduct in the performance of his or her duties, or was derelict in the performance of his or her duty as Director, Officer, or employee. The right to indemnify for expenses shall also apply to expenses of suits that are settled if the court having jurisdiction of the matter shall approve of the settlement.

ARTICLE VII. MISCELLANEOUS PROVISIONS

7.1 Seal: The seal of the Corporation shall consist of a flat-faced circular die or embossed mark, of which there may be any number of counterparts, on which there shall be engraved the word “Seal” and the name of the Corporation.

7.2 Fiscal Year: The fiscal year of the Corporation shall end on such date and shall consist of such accounting periods as may be fixed by the Board.

7.3 Checks, Notes, and Drafts: Checks, notes, drafts, and other orders for the payment of money shall be signed by persons authorized by the Board. When the Board of Directors so authorizes, however, the signature of any such person may be a facsimile.

7.4 Dividends: The Directors may declare, and the Corporation pay, dividends on its outstanding shares in the manner and upon the terms and conditions provided by law.

7.5 Amendment of Bylaws:

Unless restricted by the Articles of Incorporation, these Bylaws may be amended or changed at any meeting of the Board by affirmative vote of a majority of the number of Directors fixed by these Bylaws. A majority of the Shareholders entitled to vote in respect of the election of Directors, however, shall have the power to rescind, amend, alter or repeal any Bylaws and to enact Bylaws which, if expressly so provided, may not be amended, altered or repealed by the Board. Such action by the Shareholders may be done at any Shareholder meeting, Board meeting or written consent. Any action taken or authorized by the Shareholders (or by the Board to the extent such action is later ratified by the Shareholders), which would be inconsistent with these Bylaws but is taken, authorized or ratified by not less than the number of shares required to amend these Bylaws, so that these Bylaws would be consistent with such action, shall be given the same effect as though the Bylaws had been temporarily amended or suspended so far, but only so far, as is necessary to permit the specific action so taken or authorized.

THE UNDERSIGNED, being all of the Directors of Gemphire Therapeutics Inc., evidence their adoption and ratification of the foregoing Bylaws of the Corporation.

Dated: Nov 4, 2014

/s/ Charles L. Bisgaier
Director

/s/ David H. Lowenschuss
Director

Director

Director

Director

FIRST AMENDMENT TO BYLAWS

THIS FIRST AMENDMENT TO BYLAWS (this ***"Amendment")*** is made effective as of the 21st day of May, 2015, by GEMPHIRE THERAPEUTICS INC., a Delaware corporation (the ***"Company")***.

BACKGROUND

WHEREAS, the Board of Directors of the Company (the "***Board***") previously approved those certain Bylaws of the Company (the "***Bylaws***"); and

WHEREAS, the Board desires to amend Section 3.2 of the Bylaws as set forth herein.

NOW, THEREFORE, in accordance with the authority set forth in Section 7.5 of the Bylaws, the Bylaws are hereby amended as follows:

TERMS AND CONDITIONS

1. AMENDMENT TO SECTION 3.2. Section 3.2 of the Bylaws is hereby deleted in its entirety and replaced with the following:

3.2 Number of Directors. The number of directors which shall constitute the Board of Directors shall be fixed exclusively by resolutions adopted by a majority of the authorized number of directors constituting the Board of Directors.

2. CONSTRUCTION. Unless otherwise defined herein, capitalized terms shall have the meanings set forth in the Bylaws. The terms of this Amendment amend and modify the Bylaws as if fully set forth in the Bylaws. If there is any conflict between the terms, conditions and obligations of this Amendment and the Bylaws, this Amendment's terms, conditions and obligations shall control. MI other provisions of the Bylaws not specifically modified by this Amendment are preserved.

3. CERTIFICATION. The undersigned hereby certifies that the undersigned is the duly elected and acting Chief Legal Officer of the Company and that this Amendment was adopted by consent in lieu of a special meeting of the Board effective May 21, 2015.

4. FACSIMILE SIGNATURE. This Amendment may be executed by facsimile or .pdf signature.

SIGNATURE ON THE FOLLOWING PAGE

IN WITNESS WHEREOF, this Amendment has been made effective as of the date first set forth above.

THE COMPANY:

GEMPHIRE THERAPEUTICS INC.

By: /s/ David Lowenschuss
Name: David Lowenschuss
Title: Chief Legal Officer

AMENDED AND RESTATED BYLAWS OF GEMPHIRE THERAPEUTICS INC.

ARTICLE I
OFFICES

Section 1. **REGISTERED OFFICE.** The registered office of the corporation in the State of Delaware shall be in the City of Wilmington, County of New Castle.

Section 2. **OTHER OFFICES.** The corporation shall also have and maintain an office or principal place of business at such place as may be fixed by the corporation's Board of Directors (the ***"Board of Directors"***), and may also have offices at such other places, both within and without the State of Delaware as the Board of Directors may from time to time determine or the business of the corporation may require.

ARTICLE II
CORPORATE SEAL

Section 3. **CORPORATE SEAL.** The Board of Directors may adopt a corporate seal. The corporate seal shall consist of a die bearing the name of the corporation and the inscription, "Corporate Seal-Delaware." Said seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise.

ARTICLE III
STOCKHOLDERS' MEETINGS

Section 4. **PLACE OF MEETINGS.** Meetings of the stockholders of the corporation may be held at such place, either within or without the State of Delaware, as may be determined from time to time by the Board of Directors. The Board of Directors may, in its sole discretion, determine that the meeting shall not be held at any place, but may instead be held solely by means of remote communication as provided under the General Corporation Law of the State of Delaware (the ***"DGCL"***).

Section 5. **ANNUAL MEETINGS**.

(a) The annual meeting of the stockholders of the corporation, for the purpose of election of directors and for such other business as may properly come before it, shall be held on such date and at such time as may be designated from time to time by the Board of Directors. Nominations of persons for election to the Board of Directors of the corporation and the proposal of business to be considered by the stockholders may be made at an annual meeting of stockholders: (i) pursuant to the corporation's notice of meeting of stockholders (with respect to business other than nominations); (ii) brought specifically by or at the direction of the Board of Directors; or (iii) by any stockholder of the corporation who was a stockholder of record at the time of giving the stockholder's notice provided for in Section 5(b) of these Amended and Restated Bylaws (the ***"Bylaws"***), who is entitled to vote at the meeting and who complied with the notice procedures set forth in this Section 5. For the avoidance of doubt, clause (iii) above

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shall be the exclusive means for a stockholder to make nominations and submit other business (other than matters properly included in the corporation's notice of meeting of stockholders and proxy statement under Rule 14a-8 under the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (the ***"1934 Act"***)) before an annual meeting of stockholders.

(b) At an annual meeting of the stockholders, only such business shall be conducted as is a proper matter for stockholder action under Delaware law and as shall have been properly brought before the meeting.

i. For nominations for the election to the Board of Directors to be properly brought before an annual meeting by a stockholder pursuant to clause (iii) of Section 5(a) of these Bylaws, the stockholder must deliver written notice to the Secretary at the principal executive offices of the corporation on a timely basis as set forth in Section 5(b)(iii) of these Bylaws and must update and supplement such written notice on a timely basis as set forth in Section 5(c) of these Bylaws. Such stockholder's notice shall set forth: (A) as to each nominee such stockholder proposes to nominate at the meeting: (1) the name, age, business address and residence address of such nominee; (2) the principal occupation or employment of such nominee; (3) the class and number of shares of each class of capital stock of the corporation which are owned of record and beneficially by such nominee; (4) the date or dates on which such shares were acquired and the investment intent of such acquisition; (5) with respect to each nominee for election or re-election to the Board of Directors, include a completed and signed questionnaire, representation and agreement required by Section 5(e) of these Bylaws; and (6) such other information concerning such nominee as would be required to be disclosed in a proxy statement soliciting proxies for the election of such nominee as a director in an election contest (even if an election contest is not involved), or that is otherwise required to be disclosed pursuant to Section 14 of the 1934 Act and the rules and regulations promulgated thereunder (including such person's written consent to being named as a nominee and to serving as a director if elected); and (B) the information required by Section 5(b)(iv) of these Bylaws. The corporation may require any proposed nominee to furnish such other information as it may reasonably require to determine the eligibility of such proposed nominee to serve as an independent director of the corporation or that could be material to a reasonable stockholder's understanding of the independence, or lack thereof, of such proposed nominee.

ii. Other than proposals sought to be included in the corporation's proxy materials pursuant to Rule 14a-8 under the 1934 Act, for business other than nominations for the election to the Board of Directors to be properly brought before an annual meeting by a stockholder pursuant to clause (iii) of Section 5(a) of these Bylaws, the stockholder must deliver written notice to the Secretary at the principal executive offices of the corporation on a timely basis as set forth in Section 5(b)(iii) of these Bylaws, and must update and supplement such written notice on a timely basis as set forth in Section 5(c) of these Bylaws. Such stockholder's notice shall set forth: (A) as to each matter such stockholder proposes to bring before the meeting, a brief description of the business desired to be brought before the meeting, the reasons for conducting such business at the meeting, and any material interest (including any anticipated benefit of such business to any Proponent (as defined below) other than solely as a result of its ownership of the corporation's capital stock, that is material to any Proponent individually, or to the Proponents in the aggregate) in such business of any Proponent; and (B) the information required by Section 5(b)(iv) of these Bylaws.

iii. To be timely, the written notice required by Section 5(b)(i) or 5(b)(ii) of these Bylaws must be received by the Secretary at the principal executive offices of the corporation 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 preceding year's annual meeting; *provided, however,* that, subject to the last sentence of this Section 5(b)(iii), in the event that the date of the annual meeting is advanced more than 30 days prior to or delayed by more than 30 days after the anniversary of the preceding year's annual meeting, notice by the stockholder to be timely must be so received not earlier than the close of business on the 120th day prior to such annual meeting and not later than the close of business on the later of the 90th day prior to such annual meeting or the 10th day following the day on which public announcement of the date of such meeting is first made. In no event shall an adjournment or a postponement of an annual meeting for which notice has been given, or the public announcement thereof has been made, commence a new time period for the giving of a stockholder's notice as described above.

iv. The written notice required by Section 5(b)(i) or 5(b)(ii) of these Bylaws shall also set forth, as of the date of the notice and as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination or proposal is made (each, a ***"Proponent"*** and collectively, the ***"Proponents"***): (A) the name and address of each Proponent, as they appear on the corporation's books; (B) the class, series and number of shares of the corporation that are owned beneficially and of record by each Proponent; (C) a description of any agreement, arrangement or understanding (whether oral or in writing) with respect to such nomination or proposal between or among any Proponent and any of its affiliates or associates, and any others (including their names) acting in concert, or otherwise under the agreement, arrangement or understanding, with any of the foregoing; (D) a representation that the Proponents are holders of record or beneficial owners, as the case may be, of shares of the corporation entitled to vote at the meeting and intend to appear in person or by proxy at the meeting to nominate the person or persons specified in the notice (with respect to a notice under Section 5(b)(i) of these Bylaws) or to propose the business that is specified in the notice (with respect to a notice under Section 5(b)(ii) of these Bylaws); (E) a representation as to whether the Proponents intend to deliver a proxy statement and form of proxy to holders of a sufficient number of holders of the corporation's voting shares to elect such nominee or nominees (with respect to a notice under Section 5(b)(i) of these Bylaws) or to carry such proposal (with respect to a notice under Section 5(b)(ii) of these Bylaws); (F) to the extent known by any Proponent, the name and address of any other stockholder supporting the proposal on the date of such stockholder's notice; and (G) a description of all Derivative Transactions (as defined below) by each Proponent during the previous 12-month period, including the date of the transactions and the class, series and number of securities involved in, and the material economic terms of, such Derivative Transactions.

For purposes of Sections 5 and 6 of these Bylaws, a ***"Derivative Transaction"*** means any agreement, arrangement, interest or understanding entered into by, or on behalf or for the benefit of, any Proponent or any of its affiliates or associates, whether record or beneficial:

(w) the value of which is derived in whole or in part from the value of any class or series of shares or other securities of the corporation;

(x) which otherwise provides any direct or indirect opportunity to gain or share in any gain derived from a change in the value of securities of the corporation;

(y) the effect or intent of which is to mitigate loss, manage risk or benefit of security value or price changes; or

(z) which provides the right to vote or increase or decrease the voting power of, such Proponent, or any of its affiliates or associates, with respect to any securities of the corporation,

which agreement, arrangement, interest or understanding may include, without limitation, any option, warrant, debt position, note, bond, convertible security, swap, stock appreciation right, short position, profit interest, hedge, right to dividends, voting agreement, performance-related fee or arrangement to borrow or lend shares (whether or not subject to payment, settlement, exercise or conversion in any such class or series), and any proportionate interest of such Proponent in the securities of the corporation held by any general or limited partnership, or any limited liability company, of which such Proponent is, directly or indirectly, a general partner or managing member.

(c) A stockholder providing written notice required by Section 5(b)(i) or (ii) of these Bylaws shall update and supplement such notice in writing, if necessary, so that the information provided or required to be provided in such notice is true and correct in all material respects as of (i) the record date for the meeting and (ii) the date that is five business days prior to the meeting and, in the event of any adjournment or postponement thereof, five business days prior to such adjourned or postponed meeting. In the case of an update and supplement pursuant to clause (i) of this Section 5(c), such update and supplement shall be received by the Secretary at the principal executive offices of the corporation not later than five business days after the record date for the meeting. In the case of an update and supplement pursuant to clause (ii) of this Section 5(c), such update and supplement shall be received by the Secretary at the principal executive offices of the corporation not later than two business days prior to the date for the meeting, and, in the event of any adjournment or postponement thereof, two business days prior to such adjourned or postponed meeting.

(d) Notwithstanding anything in Section 5(b)(iii) of these Bylaws to the contrary, in the event that the number of directors in an Expiring Class (as defined below) is increased and there is no public announcement of the appointment of a director to such class, or, if no appointment was made, of the vacancy in such class, made by the corporation at least 10 days before the last day a stockholder may deliver a notice of nomination in accordance with Section 5(b)(iii) of these Bylaws, a stockholder's notice required by this Section 5 and which complies with the requirements in Section 5(b)(i) of these Bylaws, other than the timing requirements in Section 5(b)(iii) of these Bylaws, shall also be considered timely, but only with respect to nominees for any new positions in such Expiring Class created by such increase, if it shall be received by the Secretary at the principal executive offices of the corporation not later than the close of business on the 10th day following the day on which such public announcement is first made by the corporation. For purposes of this Section 5, an ***"Expiring Class"*** shall mean a class of directors whose term shall expire at the next annual meeting of stockholders.

(e) To be eligible to be a nominee for election or re-election as a director of the corporation pursuant to a nomination under clause (iii) of Section 5(a) of these Bylaws, such proposed nominee or a person on such proposed nominee's behalf must deliver (in accordance with the time periods prescribed for delivery of notice under Section 5(b)(iii) or 5(d) of these Bylaws, as applicable) to the Secretary at the principal executive offices of the corporation a written questionnaire with respect to the background and qualification of such proposed nominee and the background of any other person or entity on whose behalf the nomination is being made (which questionnaire shall be provided by the Secretary upon written request) and a written representation and agreement (in the form provided by the Secretary upon written request) that such person: (i) is not and will not become a party to (A) any agreement, arrangement or understanding with,

and has not given any commitment or assurance to, any person or entity as to how such person, if elected as a director of the corporation, will act or vote on any issue or question (a ***"Voting Commitment"***) that has not been disclosed to the corporation in the questionnaire or (B) any Voting Commitment that could limit or interfere with such person's ability to comply, if elected as a director of the corporation, with such person's fiduciary duties under applicable law; (ii) is not and will not become a party to any agreement, arrangement or understanding with any person or entity other than the corporation with respect to any direct or indirect compensation, reimbursement or indemnification in connection with service or action as a director of the corporation that has not been disclosed therein; and (iii) in such person's individual capacity and on behalf of any person or entity on whose behalf the nomination is being made, would be in compliance, if elected as a director of the corporation, and will comply with, all applicable publicly disclosed corporate governance, conflict of interest, confidentiality and stock ownership and trading policies and guidelines of the corporation.

(f) A person shall not be eligible for election or re-election as a director unless the person is nominated either in accordance with clause (ii) of Section 5(a) of these Bylaws, or in accordance with clause (iii) of Section 5(a) of these Bylaws. Except as otherwise required by law, the chairman of the meeting shall have the power and duty to determine whether a nomination or any business proposed to be brought before the meeting was made, or proposed, as the case may be, in accordance with the procedures set forth in these Bylaws and, if any proposed nomination or business is not in compliance with these Bylaws, or the Proponent does not act in accordance with the representations in Sections 5(b)(iv)(D) and 5(b)(iv)(E) of these Bylaws, to declare that such proposal or nomination shall not be presented for stockholder action at the meeting and shall be disregarded, notwithstanding that proxies in respect of such nominations or such business may have been solicited or received.

(g) Notwithstanding the foregoing provisions of this Section 5, in order to include information with respect to a stockholder proposal in the proxy statement and form of proxy for a stockholders' meeting, a stockholder must also comply with all applicable requirements of the 1934 Act and the rules and regulations thereunder. Nothing in these Bylaws shall be deemed to affect any rights of stockholders to request inclusion of proposals in the corporation's proxy statement pursuant to Rule 14a-8 under the 1934 Act; *provided, however,* that any references in these Bylaws to the 1934 Act or the rules and regulations thereunder are not intended to and shall not limit the requirements applicable to proposals and/or nominations to be considered pursuant to Section 5(a)(iii) of these Bylaws.

(h) For purposes of Sections 5 and 6 of these Bylaws,

i. ***"public announcement"*** shall mean disclosure in a press release reported by the Dow Jones News Service, Associated Press or comparable national news service or in a document publicly filed by the corporation with the Securities and Exchange Commission pursuant to Section 13, 14 or 15(d) of the 1934 Act; and

ii. ***"affiliates"*** and ***"associates"*** shall have the meanings set forth in Rule 405 under the Securities Act of 1933, as amended.

Section 6. SPECIAL MEETINGS.

(a) Special meetings of the stockholders of the corporation may be called, for any purpose as is a proper matter for stockholder action under Delaware law, by (i) the Chairman of the Board of Directors, (ii) the Chief Executive Officer, or (iii) the Board of Directors pursuant to a resolution adopted by a majority of the total number of authorized directors (whether or not there exist any vacancies in previously authorized directorships at the time any such resolution is presented to the Board of Directors for adoption).

(b) The Board of Directors shall determine the time and place, if any, of such special meeting. Upon determination of the time and place, if any, of the meeting, the Secretary shall cause a notice of meeting to be given to the stockholders entitled to vote, in accordance with the provisions of Section 7 of these Bylaws. No business may be transacted at such special meeting otherwise than specified in the notice of meeting.

(c) Nominations of persons for election to the Board of Directors may be made at a special meeting of stockholders at which directors are to be elected (i) by or at the direction of the Board of Directors or (ii) by any stockholder of the corporation who is a stockholder of record at the time of giving notice provided for in this paragraph, who shall be entitled to vote at the meeting and who delivers written notice to the Secretary of the corporation setting forth the information required by Section 5(b)(i) of these Bylaws. In the event the corporation calls a special meeting of stockholders for the purpose of electing one or more directors to the Board of Directors, any such stockholder of record may nominate a person or persons (as the case may be), for election to such position(s) as specified in the corporation's notice of meeting, if written notice setting forth the information required by Section 5(b)(i) of these Bylaws shall be received by the Secretary at the principal executive offices of the corporation not later than the close of business on the later of the 90th day prior to such meeting or the 10th day following the day on which public announcement is first made of the date of the special meeting and of the nominees proposed by the Board of Directors to be elected at such meeting. The stockholder shall also update and supplement such information as required under Section 5(c) of these Bylaws. In no event shall an adjournment or a postponement of a special meeting for which notice has been given, or the public announcement thereof has been made, commence a new time period for the giving of a stockholder's notice as described above.

(d) Notwithstanding the foregoing provisions of this Section 6, a stockholder must also comply with all applicable requirements of the 1934 Act and the rules and regulations thereunder with respect to matters set forth in this Section 6. Nothing in these Bylaws shall be deemed to affect any rights of stockholders to request inclusion of proposals in the corporation's proxy statement pursuant to Rule 14a-8 under the 1934 Act; *provided, however,* that any

references in these Bylaws to the 1934 Act or the rules and regulations thereunder are not intended to and shall not limit the requirements applicable to nominations for the election to the Board of Directors to be considered pursuant to Section 6(c) of these Bylaws.

Section 7. NOTICE OF MEETINGS. Except as otherwise provided by law, notice, given in writing or by electronic transmission, 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 entitled to vote at such meeting, such notice to specify the place, if any, date and hour, in the case of special meetings, the purpose or purposes of the meeting, and the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at any such meeting. If mailed, notice is deemed given when deposited in the United States mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on the records of the corporation. If sent via electronic transmission, notice is deemed given as of the sending time recorded at the time of transmission. Notice of the time, place, if any, and purpose of any meeting of stockholders may be waived in writing, signed by the person entitled to notice thereof, or by electronic transmission by such person, either before or after such meeting, and will be waived by any stockholder by his attendance thereat in person, by remote communication, if applicable, or

by proxy, except when the stockholder attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Any stockholder so waiving notice of such meeting shall be bound by the proceedings of any such meeting in all respects as if due notice thereof had been given.

Section 8. QUORUM. At all meetings of stockholders, except where otherwise provided by statute or by the corporation's Amended and Restated Certificate of Incorporation (the ***"Certificate of Incorporation"***), or by these Bylaws, the presence, in person, by remote communication, if applicable, or by proxy duly authorized, of the holders of a majority of the outstanding shares of stock entitled to vote shall constitute a quorum for the transaction of business. In the absence of a quorum, any meeting of stockholders may be adjourned, from time to time, either by the chairman of the meeting or by vote of the holders of a majority of the shares represented thereat, but no other business shall be transacted at such meeting. The stockholders present at a duly called or convened meeting, at which a quorum is present, may continue to transact business until adjournment, notwithstanding the withdrawal of enough stockholders to leave less than a quorum. Except as otherwise provided by statute or by applicable stock exchange rules, or by the Certificate of Incorporation or these Bylaws, in all matters other than the election of directors, the affirmative vote of the majority of shares present in person, by remote communication, if applicable, or represented by proxy at the meeting and entitled to vote generally on the subject matter shall be the act of the stockholders. Except as otherwise provided by statute, the Certificate of Incorporation or these Bylaws, directors shall be elected by a plurality of the votes of the shares present in person, by remote communication, if applicable, or represented by proxy at the meeting and entitled to vote generally on the election of directors. Where a separate vote by a class or classes or series is required, except where otherwise provided by the statute or by the Certificate of Incorporation or these Bylaws, a majority of the outstanding shares of such class or classes or series, present in person, by remote communication, if applicable, or represented by proxy duly authorized, shall constitute a quorum entitled to take action with respect to that vote on that matter. Except where otherwise provided by statute or by the Certificate of Incorporation or these Bylaws, the affirmative vote of the

majority (plurality, in the case of the election of directors) of shares of such class or classes or series present in person, by remote communication, if applicable, or represented by proxy at the meeting shall be the act of such class or classes or series.

Section 9. ADJOURNMENT AND NOTICE OF ADJOURNED MEETINGS. Any meeting of stockholders, whether annual or special, may be adjourned from time to time either by the chairman of the meeting or by the vote of a majority of the shares present in person, by remote communication, if applicable, or represented by proxy at the meeting. When a meeting is adjourned to another time or place, if any, notice need not be given of the adjourned meeting if the time and place, if any, thereof are announced at the meeting at which the adjournment is taken. At the adjourned meeting, the corporation may transact any business which might have been transacted at the original meeting. If the adjournment is for more than 30 days or if after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting.

Section 10. VOTING RIGHTS. For the purpose of determining those stockholders entitled to vote at any meeting of the stockholders, except as otherwise provided by law, only persons in whose names shares stand on the stock records of the corporation on the record date, as provided in Section 12 of these Bylaws, shall be entitled to vote at any meeting of stockholders. Every person entitled to vote shall have the right to do so either in person, by remote communication, if applicable, or by an agent or agents authorized by a proxy granted in accordance with Delaware law. An agent so appointed need not be a stockholder. No proxy shall be voted after three years from its date of creation unless the proxy provides for a longer period.

Section 11. JOINT OWNERS OF STOCK. If shares or other securities having voting power stand of record in the names of two or more persons, whether fiduciaries, members of a partnership, joint tenants, tenants in common, tenants by the entirety, or otherwise, or if two or more persons have the same fiduciary relationship respecting the same shares, unless the Secretary is given written notice to the contrary and is furnished with a copy of the instrument or order appointing them or creating the relationship wherein it is so provided, their acts with respect to voting shall have the following effect: (a) if only one votes, his act binds all; (b) if more than one votes, the act of the majority so voting binds all; or (c) if more than one votes, but the vote is evenly split on any particular matter, each faction may vote the securities in question proportionally, or may apply to the Delaware Court of Chancery for relief as provided in the DGCL, Section 217(b). If the instrument filed with the Secretary shows that any such tenancy is held in unequal interests, a majority or even-split for the purpose of clause (c) of this Section 11 shall be a majority or even-split in interest.

Section 12. LIST OF STOCKHOLDERS. The Secretary shall prepare and make, at least 10 days before every meeting of stockholders, a complete list of the stockholders entitled to vote at said meeting, arranged in alphabetical order, showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, (a) on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting, or (b) during ordinary business hours, at the principal place of business of the corporation. In the event that the corporation determines to make the list

available on an electronic network, the corporation may take reasonable steps to ensure that such information is available only to stockholders of the corporation. The list shall be open to examination of any stockholder during the time of the meeting as provided by law.

Section 13. ACTION WITHOUT MEETING. No action shall be taken by the stockholders except at an annual or special meeting of stockholders called in accordance with these Bylaws, and no action shall be taken by the stockholders by written consent or electronic transmission.

Section 14. ORGANIZATION.

(a) At every meeting of stockholders, the Chairman of the Board of Directors, or, if a Chairman has not been appointed or is absent, the President, or, if the President is absent, a chairman of the meeting chosen by a majority in interest of the stockholders entitled to vote, present in person or by proxy, shall act as chairman. The Secretary, or, in his or her absence, an Assistant Secretary directed to do so by the President, shall act as secretary of the meeting.

(b) The Board of Directors of the corporation shall be entitled to make such rules or regulations for the conduct of meetings of stockholders as it shall deem necessary, appropriate or convenient. Subject to such rules and regulations of the Board of Directors, if any, the chairman of the meeting shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairman, are necessary, appropriate or convenient for the proper conduct of the meeting, including, without limitation, establishing an agenda or order of business for the meeting, rules and procedures for maintaining order at the meeting and the safety of those present, limitations on participation in such meeting to stockholders of record of the corporation and their duly authorized and constituted proxies and such other persons as the chairman shall permit, restrictions on entry to the meeting after the

time fixed for the commencement thereof, limitations on the time allotted to questions or comments by participants and regulation of the opening and closing of the polls for balloting on matters which are to be voted on by ballot. The date and time of the opening and closing of the polls for each matter upon which the stockholders will vote at the meeting shall be announced at the meeting. Unless and to the extent determined by the Board of Directors or the chairman of the meeting, meetings of stockholders shall not be required to be held in accordance with rules of parliamentary procedure.

ARTICLE IV
DIRECTORS

Section 15. NUMBER AND TERM OF OFFICE. The authorized number of directors of the corporation shall be fixed in accordance with the Certificate of Incorporation. Directors need not be stockholders unless so required by the Certificate of Incorporation. If for any cause, the directors shall not have been elected at an annual meeting, they may be elected as soon thereafter as convenient at a special meeting of the stockholders called for that purpose in the manner provided in these Bylaws.

Section 16. POWERS. The business and affairs of the corporation shall be managed by or under the direction of the Board of Directors, except as may be otherwise provided by

statute or by the Certificate of Incorporation.

Section 17. CLASSES OF DIRECTORS

(a) Subject to the rights of the holders of any series of Preferred Stock to elect additional directors under specified circumstances, the directors shall be divided into three classes designated as Class I, Class II and Class III, respectively. Initially, directors shall be assigned to each class in accordance with a resolution or resolutions adopted by the Board of Directors. At the first annual meeting of stockholders following the initial classification of the Board of Directors, the term of office of the Class I directors shall expire and Class I directors shall be elected for a full term of three years. At the second annual meeting of stockholders following such initial classification, the term of office of the Class II directors shall expire and Class II directors shall be elected for a full term of three years. At the third annual meeting of stockholders following such initial classification, the term of office of the Class III directors shall expire and Class III directors shall be elected for a full term of three years. At each succeeding annual meeting of stockholders, directors shall be elected for a full term of three years to succeed the directors of the class whose terms expire at such annual meeting.

(b) Notwithstanding the foregoing provisions of this Section 17, each director shall serve until his successor is duly elected and qualified or until his earlier death, resignation or removal. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

Section 18. VACANCIES.

(a) Unless otherwise provided in the Certificate of Incorporation, and subject to the rights of the holders of any series of Preferred Stock, any vacancies on the Board of Directors resulting from death, resignation, disqualification, removal or other causes and any newly created directorships resulting from any increase in the number of directors shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by stockholders, be filled only by the affirmative vote of a majority of the directors then in office, even though less than a quorum of the Board of Directors, or by a sole remaining director, and not by the stockholders, *provided*, *however*, that whenever the holders of any class or classes of stock or series thereof are entitled to elect one or more directors by the provisions of the Certificate of Incorporation, vacancies and newly created directorships of such class or classes or series shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by stockholders, be filled by a majority of the directors elected by such class or classes or series thereof then in office, or by a sole remaining director so elected, and not by the stockholders. Any director elected in accordance with the preceding sentence shall hold office for the remainder of the full term of the director for which the vacancy was created or occurred and until such director's successor shall have been elected and qualified. A vacancy in the Board of Directors shall be deemed to exist under this Bylaw in the case of the death, removal or resignation of any director.

Section 19. RESIGNATION. Any director may resign at any time by delivering his or her notice in writing or by electronic transmission to the Secretary, such resignation to specify whether it will be effective at a particular time. If no such specification is made, it shall be

deemed effective at the time of delivery to the Secretary. When one or more directors shall resign from the Board of Directors, effective at a future date, a majority of the directors then in office, including those who have so resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective, and each director so chosen shall hold office for the unexpired portion of the term of the director whose place shall be vacated and until his successor shall have been duly elected and qualified.

Section 20. REMOVAL.

(a) Subject to the rights of any series of Preferred Stock to elect additional directors under specified circumstances, neither the Board of Directors nor any individual director may be removed without cause.

(b) Subject to any limitations imposed by applicable law, any individual director or directors may be removed with cause by the affirmative vote of the holders of at least 66 2/3% of the voting power of all then outstanding shares of capital stock of the corporation entitled to vote generally at an election of directors.

Section 21. DUTIES OF CHAIRMAN OF THE BOARD OF DIRECTORS. The Chairman of the Board of Directors, when present, shall preside at all meetings of the stockholders and the Board of Directors. The Chairman of the Board of Directors shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

Section 22. MEETINGS.

(a) Regular Meetings. Unless otherwise restricted by the Certificate of Incorporation, regular meetings of the Board of Directors may be held at any time or date and at any place within or without the State of Delaware which has been designated by the Board of Directors and publicized among all directors, either orally or in writing, by telephone, including a voice-messaging system or other system designed to record and communicate messages, facsimile, telegraph or telex, or by electronic mail or other electronic means. No further notice shall be required for regular meetings of the Board of Directors.

(b) Special Meetings. Unless otherwise restricted by the Certificate of Incorporation, special meetings of the Board of Directors may be held at any time and place within or without the State of Delaware whenever called by the Chairman of the Board, the Chief Executive Officer or a majority of the authorized number of directors.

(c) Meetings by Electronic Communications Equipment. Any member of the Board of Directors, or of any committee thereof, may participate in a meeting by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and participation in a meeting by such means shall constitute presence in person at such meeting.

(d) Notice of Special Meetings. Notice of the time and place of all special meetings of the Board of Directors shall be orally or in writing, by telephone, including a voice messaging system or other system or technology designed to record and communicate messages,

facsimile, telegraph or telex, or by electronic mail or other electronic means, during normal business hours, at least 24 hours before the date and time of the meeting. If notice is sent by U.S. mail, it shall be sent by first class mail, charges prepaid, at least three days before the date of the meeting. Notice of any meeting may be waived in writing, or by electronic transmission, at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director attends the meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened.

(e) Waiver of Notice. The transaction of all business at any meeting of the Board of Directors, or any committee thereof, however called or noticed, or wherever held, shall be as valid as though it had been transacted at a meeting duly held after regular call and notice, if a quorum be present and if, either before or after the meeting, each of the directors not present who did not receive notice shall sign a written waiver of notice or shall waive notice by electronic transmission. All such waivers shall be filed with the corporate records or made a part of the minutes of the meeting.

Section 23. QUORUM AND VOTING.

(a) Unless the Certificate of Incorporation requires a greater number, and except with respect to questions related to indemnification arising under Section 45 of these Bylaws for which a quorum shall be one-third of the exact number of directors fixed from time to time, a quorum of the Board of Directors shall consist of a majority of the exact number of directors fixed from time to time by the Board of Directors in accordance with the Certificate of Incorporation; *provided*, *however*, at any meeting whether a quorum be present or otherwise, a majority of the directors present may adjourn from time to time until the time fixed for the next regular meeting of the Board of Directors, without notice other than by announcement at the meeting.

(b) At each meeting of the Board of Directors at which a quorum is present, all questions and business shall be determined by the affirmative vote of a majority of the directors present, unless a different vote be required by law, the Certificate of Incorporation or these Bylaws.

Section 24. ACTION WITHOUT MEETING. Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting, if all members of the Board of Directors or committee, as the case may be, consent thereto in writing or by electronic transmission, and such writing or writings or transmission or transmissions are filed with the minutes of proceedings of the Board of Directors or committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

Section 25. FEES AND COMPENSATION. Directors shall be entitled to such compensation for their services as may be approved by the Board of Directors, including, if so approved, by resolution of the Board of Directors, a fixed sum and expenses of attendance, if any, for attendance at each regular or special meeting of the Board of Directors and at any

meeting of a committee of the Board of Directors. Nothing herein contained shall be construed to preclude any director from serving the corporation in any other capacity as an officer, agent, employee, or otherwise and receiving compensation therefor.

Section 26. COMMITTEES.

(a) Executive Committee. The Board of Directors may appoint an Executive Committee to consist of one or more members of the Board of Directors. The Executive Committee, to the extent permitted by law and provided in the resolution of the Board of Directors shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the corporation, and may authorize the seal of the corporation to be affixed to all papers which may require it; but no such committee shall have the power or authority in reference to (i) approving or adopting, or recommending to the stockholders, any action or matter (other than the election or removal of directors) expressly required by the DGCL to be submitted to stockholders for approval, or (ii) adopting, amending or repealing any Bylaw of the corporation.

(b) Other Committees. The Board of Directors may, from time to time, appoint such other committees as may be permitted by law. Such other committees appointed by the Board of Directors shall consist of one or more members of the Board of Directors and shall have such powers and perform such duties as may be prescribed by the resolution or resolutions creating such committees, but in no event shall any such committee have the powers denied to the Executive Committee in these Bylaws.

(c) Term. The Board of Directors, subject to any requirements of any outstanding series of Preferred Stock and the provisions of subsections (a) or (b) of this Section 26, may at any time increase or decrease the number of members of a committee or terminate the existence of a committee. The membership of a committee member shall terminate on the date of his death or voluntary resignation from the committee or from the Board of Directors. The Board of Directors may at any time for any reason remove any individual committee member and the Board of Directors may fill any committee vacancy created by death, resignation, removal or increase in the number of members of the committee. The Board of Directors may designate one or more directors as alternate

members of any committee, who may replace any absent or disqualified member at any meeting of the committee, and, in addition, in the absence or disqualification of any member of a committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not he or they constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member.

(d) Meetings. Unless the Board of Directors shall otherwise provide, regular meetings of the Executive Committee or any other committee appointed pursuant to this Section 26 shall be held at such times and places as are determined by the Board of Directors, or by any such committee, and when notice thereof has been given to each member of such committee, no further notice of such regular meetings need be given thereafter. Special meetings of any such committee may be held at any place which has been determined from time to time by such committee, and may be called by any director who is a member of such committee, upon notice to the members of such committee of the time and place of such special

meeting given in the manner provided for the giving of notice to members of the Board of Directors of the time and place of special meetings of the Board of Directors. Notice of any special meeting of any committee may be waived in writing or by electronic transmission at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director attends such special meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Unless otherwise provided by the Board of Directors in the resolutions authorizing the creation of the committee, a majority of the authorized number of members of any such committee shall constitute a quorum for the transaction of business, and the act of a majority of those present at any meeting at which a quorum is present shall be the act of such committee.

Section 27. Organization. At every meeting of the directors, the Chairman of the Board of Directors, or, if a Chairman has not been appointed or is absent, the Chief Executive Officer (if a director), or, if a Chief Executive Officer is absent, the President (if a director), or if the President is absent, the most senior Vice President (if a director), or, in the absence of any such person, a chairman of the meeting chosen by a majority of the directors present, shall preside over the meeting. The Secretary, or in his absence, any Assistant Secretary or other officer or director directed to do so by the Chairman, shall act as secretary of the meeting.

ARTICLE V
OFFICERS

Section 28. OFFICERS DESIGNATED. The officers of the corporation shall include, if and when designated by the Board of Directors, the Chairman of the Board of Directors, the Chief Executive Officer, the President, one or more Vice Presidents, the Secretary, the Chief Financial Officer and the Treasurer. The Board of Directors may also appoint one or more Assistant Secretaries and Assistant Treasurers and such other officers and agents with such powers and duties as it shall deem necessary. The Board of Directors may assign such additional titles to one or more of the officers as it shall deem appropriate. Any one person may hold any number of offices of the corporation at any one time unless specifically prohibited therefrom by law. The salaries and other compensation of the officers of the corporation shall be fixed by or in the manner designated by the Board of Directors.

Section 29. TENURE AND DUTIES OF OFFICERS.

(a) General. All officers shall hold office at the pleasure of the Board of Directors and until their successors shall have been duly elected and qualified, unless sooner removed. Any officer elected or appointed by the Board of Directors may be removed at any time by the Board of Directors. If the office of any officer becomes vacant for any reason, the vacancy may be filled by the Board of Directors.

(b) Duties of Chairman of the Board of Directors. The Chairman of the Board of Directors, when present, shall preside at all meetings of the stockholders and the Board of Directors. The Chairman of the Board of Directors shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time. If there is no President or Chief Executive

Officer, unless otherwise determined by the Board of Directors, then the Chairman of the Board of Directors shall also serve as the president of the corporation and shall have the powers and duties prescribed in paragraph (c) of this Section.

(c) Duties of Chief Executive Officer. The Chief Executive Officer shall preside at all meetings of the stockholders and at all meetings of the Board of Directors, unless the Chairman of the Board of Directors has been appointed and is present. Unless an officer has been appointed Chief Executive Officer of the corporation, the President shall be the chief executive officer of the corporation and shall, subject to the control of the Board of Directors, have general supervision, direction and control of the business and officers of the corporation. To the extent that a Chief Executive Officer has been appointed and no President has been appointed, all references in these Bylaws to the President shall be deemed references to the Chief Executive Officer. The Chief Executive Officer shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

(d) Duties of President. The President shall preside at all meetings of the stockholders and at all meetings of the Board of Directors, unless the Chairman of the Board of Directors, or the Chief Executive Officer has been appointed and is present. Unless another officer has been appointed Chief Executive Officer of the corporation, the President shall be the chief executive officer of the corporation and shall, subject to the control of the Board of Directors, have general supervision, direction and control of the business and officers of the corporation. The President shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

(e) Duties of Vice Presidents. The Vice Presidents may assume and perform the duties of the President in the absence or disability of the President or whenever the office of President is vacant. The Vice Presidents shall perform other duties commonly incident to their office and shall also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer, or, if the Chief Executive Officer has not been appointed or is absent, the President shall designate from time to time.

(f) Duties of Secretary. The Secretary shall attend all meetings of the stockholders and of the Board of Directors and shall record all acts and proceedings thereof in the minute book of the corporation. The Secretary shall give notice in conformity with these Bylaws of all meetings of the stockholders and of all meetings of the Board of Directors and any committee thereof requiring notice. The Secretary shall perform all other duties provided for in these Bylaws and other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall

designate from time to time. The President may direct any Assistant Secretary or other officer to assume and perform the duties of the Secretary in the absence or disability of the Secretary, and each Assistant Secretary shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

(g) Duties of Chief Financial Officer. The Chief Financial Officer shall keep or cause to be kept the books of account of the corporation in a thorough and proper manner and shall render statements of the financial affairs of the corporation in such form and as often as required by the Board of Directors or the President. The Chief Financial Officer, subject to the order of the Board of Directors, shall have the custody of all funds and securities of the corporation. The Chief Financial Officer shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time. To the extent that a Chief Financial Officer has been appointed and no Treasurer has been appointed, all references in these Bylaws to the Treasurer shall be deemed references to the Chief Financial Officer. The President may direct the Treasurer, if any, or any Assistant Treasurer, or the Controller or any Assistant Controller to assume and perform the duties of the Chief Financial Officer in the absence or disability of the Chief Financial Officer, and each Treasurer and Assistant Treasurer and each Controller and Assistant Controller shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

(h) Duties of Treasurer. Unless another officer has been appointed Chief Financial Officer of the corporation, the Treasurer shall be the chief financial officer of the corporation and shall keep or cause to be kept the books of account of the corporation in a thorough and proper manner and shall render statements of the financial affairs of the corporation in such form and as often as required by the Board of Directors or the President, and, subject to the order of the Board of Directors, shall have the custody of all funds and securities of the corporation. The Treasurer shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

Section 30. DELEGATION OF AUTHORITY. The Board of Directors may from time to time delegate the powers or duties of any officer to any other officer or agent, notwithstanding any provision hereof.

Section 31. RESIGNATIONS. Any officer may resign at any time by giving notice in writing or by electronic transmission to the Board of Directors or to the President or to the Secretary. Any such resignation shall be effective when received by the person or persons to whom such notice is given, unless a later time is specified therein, in which event the resignation shall become effective at such later time. Unless otherwise specified in such notice, the acceptance of any such resignation shall not be necessary to make it effective. Any resignation shall be without prejudice to the rights, if any, of the corporation under any contract with the resigning officer.

Section 32. REMOVAL. Any officer may be removed from office at any time, either with or without cause, by the affirmative vote of a majority of the directors in office at the time, or by the unanimous written consent of the directors in office at the time, or by any committee or by the Chief Executive Officer or by other superior officers upon whom such power of removal may have been conferred by the Board of Directors.

ARTICLE VI
EXECUTION OF CORPORATE INSTRUMENTS AND VOTING OF SECURITIES OWNED BY THE CORPORATION

Section 33. EXECUTION OF CORPORATE INSTRUMENTS.

(a) The Board of Directors may, in its discretion, determine the method and designate the signatory officer or officers, or other person or persons, to execute on behalf of the corporation any corporate instrument or document, or to sign on behalf of the corporation the corporate name without limitation, or to enter into contracts on behalf of the corporation, except where otherwise provided by law or these Bylaws, and such execution or signature shall be binding upon the corporation.

(b) All checks and drafts drawn on banks or other depositaries on funds to the credit of the corporation or in special accounts of the corporation shall be signed by such person or persons as the Board of Directors shall authorize so to do.

(c) Unless authorized or ratified by the Board of Directors or within the agency power of an officer, no officer, agent or employee shall have any power or authority to bind the corporation by any contract or engagement or to pledge its credit or to render it liable for any purpose or for any amount.

Section 34. VOTING OF SECURITIES OWNED BY THE CORPORATION. All stock and other securities of other corporations owned or held by the corporation for itself, or for other parties in any capacity, shall be voted, and all proxies with respect thereto shall be executed, by the person authorized so to do by resolution of the Board of Directors, or, in the absence of such authorization, by the Chairman of the Board of Directors, the Chief Executive Officer, the President, or any Vice President.

ARTICLE VII
SHARES OF STOCK

Section 35. FORM AND EXECUTION OF CERTIFICATES. The shares of the corporation shall be represented by certificates, or shall be uncertificated if so provided by resolution or resolutions of the Board of Directors. Certificates for the shares of stock of the corporation, if any, shall be in such form as is consistent with the Certificate of Incorporation and applicable law. Every holder of stock represented by certificate in the corporation shall be entitled to have a certificate signed by or in the name of the corporation by the Chairman of the Board of Directors, the Chief Executive Officer, or the President or any Vice President and by the Chief Financial Officer, Treasurer or Assistant Treasurer or the Secretary or Assistant Secretary, certifying the number of shares owned by him in the corporation. Any or all of the signatures on the certificate may be facsimiles. In case any officer, transfer agent, or registrar who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer, transfer agent, or registrar before such certificate is issued, it may be issued with the same effect as if he were such officer, transfer agent, or registrar at the date of issue.

Section 36. LOST CERTIFICATES. A new certificate or certificates shall be issued in place of any certificate or certificates theretofore issued by the corporation alleged to have been

lost, stolen, or destroyed, upon the making of an affidavit of that fact by the person claiming the certificate of stock to be lost, stolen, or destroyed. The corporation may require, as a condition precedent to the issuance of a new certificate or certificates, the owner of such lost, stolen, or destroyed certificate or certificates, or the owner's legal representative, to agree to indemnify the corporation in such manner as it shall require or to give the corporation a surety bond in such form and amount as it may direct as indemnity against any claim that may be made against the corporation with respect to the certificate alleged to have been lost, stolen, or destroyed.

Section 37. TRANSFERS.

(a) Transfers of record of shares of stock of the corporation shall be made only upon its books by the holders thereof, in person or by attorney duly authorized, and, in the case of stock represented by certificate, upon the surrender of a properly endorsed certificate or certificates for a like number of shares.

(b) The corporation shall have power to enter into and perform any agreement with any number of stockholders of any one or more classes of stock of the corporation to restrict the transfer of shares of stock of the corporation of any one or more classes owned by such stockholders in any manner not prohibited by the DGCL.

Section 38. FIXING RECORD DATES.

(a) In order that the corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall, subject to applicable law, not be more than 60 nor less than 10 days before the date of such meeting. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; *provided, however,* that the Board of Directors may fix a new record date for the adjourned meeting.

(b) In order that the corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board of Directors may fix, in advance, a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than 60 days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

Section 39. REGISTERED STOCKHOLDERS. The corporation shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive

dividends, and to vote as such owner, and shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of any other person whether or not it shall have express or other notice thereof, except as otherwise provided by the laws of Delaware.

ARTICLE VIII
OTHER SECURITIES OF THE CORPORATION

Section 40. EXECUTION OF OTHER SECURITIES. All bonds, debentures and other corporate securities of the corporation, other than stock certificates (covered in Section 35 of these Bylaws), may be signed by the Chairman of the Board of Directors, the Chief Executive Officer, President or any Vice President, or such other person as may be authorized by the Board of Directors, and the corporate seal impressed thereon or a facsimile of such seal imprinted thereon and attested by the signature of the Secretary or an Assistant Secretary, or the Chief Financial Officer or Treasurer or an Assistant Treasurer; *provided, however,* that where any such bond, debenture or other corporate security shall be authenticated by the manual signature, or where permissible facsimile signature, of a trustee under an indenture pursuant to which such bond, debenture or other corporate security shall be issued, the signatures of the persons signing and attesting the corporate seal on such bond, debenture or other corporate security may be the imprinted facsimile of the signatures of such persons. Interest coupons appertaining to any such bond, debenture or other corporate security, authenticated by a trustee as aforesaid, shall be signed by the Treasurer or an Assistant Treasurer of the corporation or such other person as may be authorized by the Board of Directors, or bear imprinted thereon the facsimile signature of such person. In case any officer who shall have signed or attested any bond, debenture or other corporate security, or whose facsimile signature shall appear thereon or on any such interest coupon, shall have ceased to be such officer before the bond, debenture or other corporate security so signed or attested shall have been delivered, such bond, debenture or other corporate security nevertheless may be adopted by the corporation and issued and delivered as though the person who signed the same or whose facsimile signature shall have been used thereon had not ceased to be such officer of the corporation.

ARTICLE IX
DIVIDENDS

Section 41. DECLARATION OF DIVIDENDS. Dividends upon the capital stock of the corporation, subject to the provisions of the Certificate of Incorporation and applicable law, if any, may be declared by the Board of Directors pursuant to law at any regular or special meeting. Dividends may be paid in cash, in property, or in shares of the capital stock, subject to the provisions of the Certificate of Incorporation and applicable law.

Section 42. DIVIDEND RESERVE. Before payment of any dividend, there may be set aside out of any funds of the corporation available for dividends such sum or sums as the Board of Directors from time to time, in their absolute discretion, think proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the corporation, or for such other purpose as the Board of Directors shall think conducive to the interests of the corporation, and the Board of Directors may modify or abolish any such reserve in the manner in which it was created.

ARTICLE X
FISCAL YEAR

Section 43. FISCAL YEAR. The fiscal year of the corporation shall be fixed by resolution of the Board of Directors.

ARTICLE XI
INDEMNIFICATION

Section 44. INDEMNIFICATION OF DIRECTORS, OFFICERS, EMPLOYEES AND OTHER AGENTS.

(a) Directors and Officers. The corporation shall indemnify its directors and officers to the extent not prohibited by the DGCL or any other applicable law; *provided, however,* that the corporation may modify the extent of such indemnification by individual contracts with its directors and officers; and, *provided, further,* that the corporation shall not be required to indemnify any director or officer in connection with any proceeding (or part thereof) initiated by such person unless (i) such indemnification is expressly required to be made by law, (ii) the proceeding was authorized by the Board of Directors of the corporation, (iii) such indemnification is provided by the corporation, in its sole discretion, pursuant to the powers vested in the corporation under the DGCL or any other applicable law or (iv) such indemnification is required to be made under subsection (d).

(b) Employees and Other Agents. The corporation shall have power to indemnify its employees and other agents as set forth in the DGCL or any other applicable law. The Board of Directors shall have the power to delegate the determination of whether to indemnify any such employee or other agent to such officers or other persons as the Board of Directors so determines.

(c) Expenses. The corporation shall advance to any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he is or was a director or officer, of the corporation, or is or was serving at the request of the corporation as a director or officer of another corporation, partnership, joint venture, trust or other enterprise, prior to the final disposition of the proceeding, promptly following request therefor, all expenses incurred by any director or officer in connection with such proceeding provided, however, that if the DGCL requires, an advancement of expenses incurred by a director or officer in his or her capacity as a director or officer (and not in any other capacity in which service was or is rendered by such indemnitee, including, without limitation, service to an employee benefit plan) shall be made only upon delivery to the corporation of an undertaking, by or on behalf of such indemnitee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no further right to appeal that such indemnitee is not entitled to be indemnified for such expenses under this Section 44 or otherwise.

Notwithstanding the foregoing, unless otherwise determined pursuant to paragraph (e) of this Section 44, no advance shall be made by the corporation to an officer of the corporation (except by reason of the fact that such officer is or was a director of the corporation in which

event this paragraph shall not apply) in any action, suit or proceeding, whether civil, criminal, administrative or investigative, if a determination is reasonably and promptly made (i) by a majority vote of directors who were not parties to the proceeding, even if not a quorum, or (ii) by a committee of such directors designated by a majority vote of such directors, even though less than a quorum, or (iii) if there are no such directors, or such directors so direct, by independent legal counsel in a written opinion, that the facts known to the decision-making party at the time such determination is made demonstrate clearly and convincingly that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the corporation.

(d) Enforcement. Without the necessity of entering into an express contract, all rights to indemnification and advances to directors and officers under this Section 44 shall be deemed to be contractual rights and be effective to the same extent and as if provided for in a contract between the corporation and the director or officer. Any right to indemnification or advances granted by this Section 44 to a director or officer shall be enforceable by or on behalf of the person holding such right in any court of competent jurisdiction if (i) the claim for indemnification or advances is denied, in whole or in part, or (ii) no disposition of such claim is made within 90 days of request therefor. To the extent permitted by law, the claimant in such enforcement action, if successful in whole or in part, shall be entitled to be paid also the expense of prosecuting the claim. In connection with any claim for indemnification, the corporation shall be entitled to raise as a defense to any such action that the claimant has not met the standards of conduct that make it permissible under the DGCL or any other applicable law for the corporation to indemnify the claimant for the amount claimed. In connection with any claim by an officer of the corporation (except in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that such officer is or was a director of the corporation) for advances, the corporation shall be entitled to raise a defense as to any such action clear and convincing evidence that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the corporation, or with respect to any criminal action or proceeding that such person acted without reasonable cause to believe that his conduct was lawful. Neither the failure of the corporation (including its Board of Directors, independent legal counsel or its stockholders) to have made a determination prior to the commencement of such action that indemnification of the claimant is proper in the circumstances because he has met the applicable standard of conduct set forth in the DGCL or any other applicable law, nor an actual determination by the corporation (including its Board of Directors, independent legal counsel or its stockholders) that the claimant has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that claimant has not met the applicable standard of conduct. In any suit brought by a director or officer to enforce a right to indemnification or to an advancement of expenses hereunder, the burden of proving that the director or officer is not entitled to be indemnified, or to such advancement of expenses, under this Section 44 or otherwise shall be on the corporation.

(e) Non-Exclusivity of Rights. The rights conferred on any person by this Bylaw shall not be exclusive of any other right which such person may have or hereafter acquire under any applicable statute, provision of the Certificate of Incorporation, Bylaws, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in such person's official capacity and as to action in another capacity while holding office. The corporation is specifically authorized to enter into individual contracts with any or all of its directors, officers,

employees or agents respecting indemnification and advances, to the fullest extent not prohibited by the DGCL, or by any other applicable law.

(f) Survival of Rights. The rights conferred on any person by this Bylaw shall continue as to a person who has ceased to be a director or officer, or, if applicable, employee or other agent, and shall inure to the benefit of the heirs, executors and administrators of such a person.

(g) Insurance. To the fullest extent permitted by the DGCL or any other applicable law, the corporation, upon approval by the Board of Directors, may purchase insurance on behalf of any person required or permitted to be indemnified pursuant to this Section 44.

(h) Amendments. Any repeal or modification of this Section 44 shall only be prospective and shall not affect the rights under this Bylaw in effect at the time of the alleged occurrence of any action or omission to act that is the cause of any proceeding against any agent of the corporation.

(i) Saving Clause. If this Bylaw or any portion hereof shall be invalidated on any ground by any court of competent jurisdiction, then the corporation shall nevertheless indemnify each director and officer to the full extent not prohibited by any applicable portion of this Section 44 that shall not have been invalidated, or by any other applicable law. If this Section 44 shall be invalid due to the application of the indemnification provisions of another jurisdiction, then the corporation shall indemnify each director and officer to the full extent under any other applicable law.

(j) Certain Definitions. For the purposes of this Bylaw, the following definitions shall apply:

i. The term ***"proceeding"*** shall be broadly construed and shall include, without limitation, the investigation, preparation, prosecution, defense, settlement, arbitration and appeal of, and the giving of testimony in, any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative.

ii. The term ***"expenses"*** shall be broadly construed and shall include, without limitation, court costs, attorneys' fees, witness fees, fines, amounts paid in settlement or judgment and any other costs and expenses of any nature or kind incurred in connection with any proceeding.

iii. The term the ***"corporation"*** shall include, in addition to the resulting corporation, any constituent corporation (including any constituent of a constituent) absorbed in a consolidation or merger which, if its separate existence had continued, would have had power and authority to indemnify its directors, officers, and employees or agents, so that any person who is or was a director, officer, employee or agent of such constituent corporation, or is or was serving at the request of such constituent corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, shall stand in the same position under the provisions of this Section 44 with respect to the resulting or

surviving corporation as he would have with respect to such constituent corporation if its separate existence had continued.

iv. References to a ***"director," "officer," "employee,"*** or ***"agent"*** of the corporation shall include, without limitation, situations where such person is serving at the request of the corporation as, respectively, a director, officer, employee, trustee or agent of another corporation, partnership, joint venture, trust or other enterprise.

v. References to ***"other enterprise"*** shall include employee benefit plans; references to ***"fines"*** shall include any excise taxes assessed on a person with respect to an employee benefit plan; and references to ***"serving at the request of the corporation"*** shall include any service as a director, officer, employee or agent of the corporation which imposes duties on, or involves services by, such director, officer, employee, or agent with respect to an employee benefit plan, its participants, or beneficiaries; and a person who acted in good faith and in a manner such person reasonably believed to be in the interest of the participants and beneficiaries of an employee benefit plan shall be deemed to have acted in a manner ***"not opposed to the best interests of the corporation"*** as referred to in this Section 44.

ARTICLE XII
NOTICES

Section 45. NOTICES.

(a) Notice to Stockholders. Written notice to stockholders of stockholder meetings shall be given as provided in Section 7 of these Bylaws. Without limiting the manner by which notice may otherwise be given effectively to stockholders under any agreement or contract with such stockholder, and except as otherwise required by law, written notice to stockholders for purposes other than stockholder meetings may be sent by U.S. mail or nationally recognized overnight courier, or by facsimile, telegraph or telex or by electronic mail or other electronic means.

(b) Notice to Directors. Any notice required to be given to any director may be given by the method stated in subsection (a), as otherwise provided in these Bylaws, or by overnight delivery service, facsimile, telex or telegram, except that such notice other than one which is delivered personally shall be sent to such address as such director shall have filed in writing with the Secretary, or, in the absence of such filing, to the last known post office address of such director.

(c) Affidavit of Mailing. An affidavit of mailing, executed by a duly authorized and competent employee of the corporation or its transfer agent appointed with respect to the class of stock affected, or other agent, specifying the name and address or the names and addresses of the stockholder or stockholders, or director or directors, to whom any such notice or notices was or were given, and the time and method of giving the same, shall in the absence of fraud, be prima facie evidence of the facts therein contained.

(d) Methods of Notice. It shall not be necessary that the same method of giving notice be employed in respect of all recipients of notice, but one permissible method may

be employed in respect of any one or more, and any other permissible method or methods may be employed in respect of any other or others.

(e) Notice to Person With Whom Communication is Unlawful. Whenever notice is required to be given, under any provision of law or of the Certificate of Incorporation or Bylaws of the corporation, to any person with whom communication is unlawful, the giving of such notice to such person shall not be required and there shall be no duty to apply to any governmental authority or agency for a license or permit to give such notice to such person. Any action or meeting which shall be taken or held without notice to any such person with whom communication is unlawful shall have the same force and effect as if such notice had been duly given. In the event that the action taken by the corporation is such as to require the filing of a certificate under any provision of the

DGCL, the certificate shall state, if such is the fact and if notice is required, that notice was given to all persons entitled to receive notice except such persons with whom communication is unlawful.

(f) Notice to Stockholders Sharing an Address. Except as otherwise prohibited under the DGCL, any notice given under the provisions of the DGCL, the Certificate of Incorporation or the Bylaws shall be effective if given by a single written notice to stockholders who share an address if consented to by the stockholders at that address to whom such notice is given. Such consent shall have been deemed to have been given if such stockholder fails to object in writing to the corporation within 60 days of having been given notice by the corporation of its intention to send the single notice. Any consent shall be revocable by the stockholder by written notice to the corporation.

ARTICLE XIII
AMENDMENTS

Section 46. AMENDMENTS. Subject to the limitations set forth in Section 44(h) of these Bylaws or the provisions of the Certificate of Incorporation, the Board of Directors is expressly empowered to adopt, amend or repeal the Bylaws of the corporation. Any adoption, amendment or repeal of the Bylaws of the corporation by the Board of Directors shall require the approval of a majority of the authorized number of directors. The stockholders also shall have power to adopt, amend or repeal the Bylaws of the corporation; *provided*, *however,* that, in addition to any vote of the holders of any class or series of stock of the corporation required by law or by the Certificate of Incorporation, such action by stockholders shall require 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 capital stock of the corporation entitled to vote generally in the election of directors, voting together as a single class.

ARTICLE XIV
LOANS TO OFFICERS OR EMPLOYEES

Section 47. LOANS TO OFFICERS OR EMPLOYEES. Except as otherwise prohibited by applicable law, the corporation may lend money to, or guarantee any obligation of, or otherwise assist any officer or other employee of the corporation or of its subsidiaries, including any officer or employee who is a director of the corporation or its subsidiaries, whenever, in the judgment of the Board of Directors, such loan, guarantee or assistance may reasonably be expected to benefit

the corporation. The loan, guarantee or other assistance may be with or without interest and may be unsecured, or secured in such manner as the Board of Directors shall approve, including, without limitation, a pledge of shares of stock of the corporation. Nothing in these Bylaws shall be deemed to deny, limit or restrict the powers of guaranty or warranty of the corporation at common law or under any statute.

ARTICLE XV
FORUM FOR ADJUDICATION OF DISPUTES

Section 48. FORUM FOR ADJUDICATION OF DISPUTES. Unless the corporation consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (a) any derivative action or proceeding brought on behalf of the corporation, (b) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of the corporation to the corporation or the corporation’s stockholders, (c) any action asserting a claim arising pursuant to any provision of the DGCL, or (d) any action asserting a claim governed by the internal affairs doctrine. Any person or entity purchasing or otherwise acquiring any interest in shares of capital stock of the corporation shall be deemed to have notice of and consented to the provisions of this Section 48.

Exhibit 4.1

ZQ|CERT#|COY|CLS|RGSTRY|ACCT#|TRANSTYPE|RUN#|TRANS#

COMMON STOCK

PAR VALUE $0.001

COMMON STOCK

THIS CERTIFICATE IS TRANSFERABLE IN CANTON, MA; JERSIEY CITY, NJ AND COLLEGE STATION, TX

Certificate Number

ZQ00000000

Shares

Gemphire Therapeutics

GEMPHIRE THERAPEUTICS INC.

INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE

THIS CERTIFIES THAT

MR. SAMPLE & MRS. SAMPLE & MR. SAMPLE & MRS. SAMPLE

CUSIP 36870A 10 8

SEE REVERSE FOR CERTAIN DEFINITIONS

is the owner of

ZERO HUNDRED THOUSAND ZERO HUNDRED AND ZERO

FULLY-PAID AND NON-ASSESSABLE SHARES OF COMMON STOCK OF

Gemphire Therapeutics Inc. (hereinafter called the "Company"), transferable on the books of the Company in person or by duly authorized attorney, upon surrender of this Certificate properly endorsed. This Certificate and the shares represented hereby, are issued and shall be held subject to all of the provisions of the Certificate of Incorporation, as amended, and the By-Laws, as amended, of the Company (copies of which are on file with the Company and with the Transfer Agent), to all of which each holder, by acceptance hereof, assents. This Certificate is not valid unless countersigned and registered by the Transfer Agent and Registrar.

Witness the facsimile seal of the Company and the facsimile signatures of its duly authorized officers.

DATED DD-MMM-YYYY

FACSIMILE SIGNATURE TO COME

President

GEMPHIRE THERAPEUTICS INC. SEAL October 2014 DELAWARE

COUNTERSIGNED AND REGISTERED:
COMPUTERSHARE TRUST COMPANY, N.A.
TRANSFER AGENT AND REGISTRAR,

FACSIMILE SIGNATURE TO COME

Secretary

By _____
AUTHORIZED SIGNATURE

SECURITY INSTRUCTIONS ON REVERSE

1234567

GEMPHIRE THERAPEUTICS INC.

THE COMPANY WILL FURNISH WITHOUT CHARGE TO EACH SHAREHOLDER WHO SO REQUESTS, A SUMMARY OF THE POWERS, DESIGNATIONS, PREFERENCES AND RELATIVE, PARTICIPATING, OPTIONAL OR OTHER SPECIAL RIGHTS OF EACH CLASS OF STOCK OF THE COMPANY AND THE QUALIFICATIONS, LIMITATIONS OR RESTRICTIONS OF SUCH PREFERENCES AND RIGHTS, AND THE VARIATIONS IN RIGHTS, PREFERENCES AND LIMITATIONS DETERMINED FOR EACH SERIES, WHICH ARE FIXED BY THE CERTIFICATE OF INCORPORATION OF THE COMPANY, AS AMENDED, AND THE RESOLUTIONS OF THE BOARD OF DIRECTORS OF THE COMPANY, AND THE AUTHORITY OF THE BOARD OF DIRECTORS TO DETERMINE VARIATIONS FOR FUTURE SERIES. SUCH REQUEST MAY BE MADE TO THE OFFICE OF THE SECRETARY OF THE COMPANY OR TO THE TRANSFER AGENT. THE BOARD OF DIRECTORS MAY REQUIRE THE OWNER OF A LOST OR DESTROYED STOCK CERTIFICATE, OR HIS LEGAL REPRESENTATIVES, TO GIVE THE COMPANY A BOND TO INDEMNIFY IT AND ITS TRANSFER AGENTS AND REGISTRARS AGAINST ANY CLAIM THAT MAY BE MADE AGAINST THEM ON ACCOUNT OF THE ALLEGED LOSS OR DESTRUCTION OF ANY SUCH CERTIFICATE.

The following abbreviations, when used in the inscription on the face of this certificate, shall be construed as though they were written out in full according to applicable laws or regulations:

TEN COM - as tenants in common	UNIF GIFT MIN ACT - .....(Cust).....Custodian .....(Minor).....
TEN ENT - as tenants by the entireties	under Uniform Gifts to Minors Act.....(State).....
JT TEN - as joint tenants with right of survivorship and not as tenants in common	UNIF TRF MIN ACT - .....(Cust).....Custodian (until age .....)
	.....(Minor).....under Uniform Transfers to Minors Act .....(State).....

Additional abbreviations may also be used though not in the above list.

For value received, _____hereby sell, assign and transfer unto

PLEASE INSERT SOCIAL SECURITY OR OTHER IDENTIFYING NUMBER OF ASSIGNEE

_____

(PLEASE PRINT OR TYPEWRITE NAME AND ADDRESS, INCLUDING POSTAL ZIP CODE, OF ASSIGNEE)

_____

_____

_____ Shares

of the common stock represented by the within Certificate, and do hereby irrevocably constitute and appoint

_____ Attorney

to transfer the said stock on the books of the within-named Company with full power of substitution in the premises.

Dated: _____20_____

Signature: _____

Signature: _____

Notice: The signature to this assignment must correspond with the name as written upon the face of the certificate, in every particular, without alteration or enlargement, or any change whatever.

Signature(s) Guaranteed: Medallion Guarantee Stamp

THE SIGNATURE(S) SHOULD BE GUARANTEED BY AN ELIGIBLE GUARANTOR INSTITUTION (Banks, Stockbrokers, Savings and Loan Associations and Credit Unions) WITH MEMBERSHIP IN AN APPROVED SIGNATURE GUARANTEE MEDALLION PROGRAM, PURSUANT TO S.E.C. RULE 17Ad-15.

SECURITY INSTRUCTIONS

THIS IS WATERMARKED PAPER. DO NOT ACCEPT WITHOUT NOTING WATERMARK. HOLD TO LIGHT TO VERIFY WATERMARK.

The IRS requires that the named transfer agent ("we") report the cost basis of certain shares or units acquired after January 1, 2011. If your shares or units are covered by the legislation, and you requested to sell or transfer the shares or units using a specific cost basis calculation method, then we have processed as you requested. If you did not specify a cost basis calculation method, then we have defaulted to the first in, first out (FIFO) method. Please consult your tax advisor if you need additional information about cost basis.

If you do not keep in contact with the issuer or do not have any activity in your account for the time period specified by state law, your property may become subject to state unclaimed property laws and transferred to the appropriate state.

1534267

Exhibit 5.1

HONIGMAN

Honigman Miller Schwartz and Cohn LLP
Attorneys and Counselors

(269) 337-7700
Fax: (269) 337-7701
www.honigman.com

June 13, 2016

Gemphire Therapeutics Inc.
43334 Seven Mile Road, Suite 1000
Northville, Michigan 48167

Ladies and Gentlemen:

We have acted as counsel to Gemphire Therapeutics Inc., a Delaware corporation (the ***"Company"***), in connection with the preparation and filing with the Securities and Exchange Commission (the ***"Commission"***) of a Registration Statement on Form S-1 (Registration No. 333-210815) of the Company (as amended through the date hereof and including all exhibits thereto, the ***"Registration Statement"***), including a related prospectus filed with the Registration Statement (the ***"Prospectus"***), pursuant to the Securities Act of 1933, as amended (the ***"Securities Act"***), relating to a proposed underwritten public offering (the ***"Offering"***) of up to 4,312,500 shares of the common stock, par value $0.001 per share, of the Company (the ***"Common Stock"***), comprised of 3,750,000 shares of Common Stock to be sold by the Company, which includes 562,500 shares that may be sold upon exercise of the option to purchase additional shares granted to the underwriters of the Offering (the ***"Shares"***). The Shares are to be sold to the underwriters for resale to the public as described in the Registration Statement and pursuant to the underwriting agreement referred to in the Registration Statement (the ***"Underwriting Agreement"***).

Based upon our examination of such documents and other matters as we deem relevant, we are of the opinion that the Shares have been duly authorized by the Company and, when issued and sold in accordance with the Registration Statement and the Prospectus, with payment received by the Company in the manner described in the Underwriting Agreement, will be validly issued, fully paid and non-assessable.

We hereby consent to the filing of this opinion with the Commission as Exhibit 5.1 to the Registration Statement and to the reference to our firm under the caption "Legal Matters" in the Registration Statement and the Prospectus. In giving such consent, we do not admit that we are within the category of persons whose consent is required by Section 7 of the Securities Act or the rules and regulations promulgated thereunder by the Commission.

Very truly yours,

/S/ HONIGMAN MILLER SCHWARTZ AND COHN LLP

PDT/JCB/MLE/GLS/REW/MSB

GEMPHIRE THERAPEUTICS INC.

AMENDED AND RESTATED 2015 EQUITY INCENTIVE PLAN

ADOPTED BY THE BOARD OF DIRECTORS: April 22, 2016
APPROVED BY THE STOCKHOLDERS: April 26, 2016
IPO DATE: [ ], 2016

1. GENERAL.

(a) Amendment and Restatement of Prior Plan. The Plan is intended to amend and restate the Gemphire Therapeutics Inc. 2015 Equity Incentive Plan, and from and after 12:01 a.m. Eastern time on the IPO Date, all Awards will be granted under the terms of the Plan as amended and restated herein.

(b) Eligible Award Recipients. Employees, Directors and Consultants are eligible to receive Awards.

(c) Available Awards. The Plan provides for the grant of the following Awards: (i) Incentive Stock Options, (ii) Nonstatutory Stock Options, (iii) Stock Appreciation Rights (iv) Restricted Stock Awards, (v) Restricted Stock Unit Awards, (vi) Performance Stock Awards, (vii) Performance Cash Awards, and (viii) Other Stock Awards.

(d) Purpose. The Plan, through the grant of Awards, is intended to help the Company secure and retain the services of eligible award recipients, provide incentives for such persons to exert maximum efforts for the success of the Company and any Affiliate, and provide a means by which the eligible recipients may benefit from the value or increases in value of the Common Stock.

2. ADMINISTRATION.

(a) Administration by Board. The Board will administer the Plan. The Board may delegate administration of the Plan to a Committee or Committees, as provided in Section 2(c).

(b) Powers of Board. The Board will have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine: (A) who will be granted Awards; (B) when and how each Award will be granted; (C) what type of Award will be granted; (D) the provisions of each Award (which need not be identical), including when a person will be permitted to exercise or otherwise receive cash or Common Stock under the Award; (E) the number of shares of Common Stock subject to, or the cash value of, an Award; and (F) the Fair Market Value applicable to a Stock Award.

(ii) To construe and interpret the Plan and Awards granted under it, and to establish, amend and revoke rules and regulations for administration of the Plan and Awards. The Board, in the exercise of these powers, may correct any defect, omission or inconsistency in the Plan or in any Award Agreement or in the written terms of a Performance Cash Award, in a manner and to the extent it will deem necessary or expedient to make the Plan or Award fully effective.

(iii) To settle all controversies regarding the Plan and Awards granted under it.

(iv) Except where such action would result in the Participant incurring liability for additional tax under Section 409A of the Code or in an Award intended to qualify as "qualified performance-based compensation" under Section 162(m) of the Code failing to so qualify, to accelerate, in whole or in part, the time at which an Award may be exercised or vest (or the time at which cash or shares of Common Stock may be issued in settlement thereof).

(v) To suspend or terminate the Plan at any time. Except as otherwise provided in the Plan or an Award Agreement, suspension or termination of the Plan will not materially impair a Participant's rights under the Participant's then-outstanding Award without the Participant's written consent, except as provided in subsection (viii) below.

(vi) To amend the Plan in any respect the Board deems necessary or advisable, including, without limitation, by adopting amendments (i) to ensure that Awards intended to qualify as Incentive Stock Options so qualify, (ii) to ensure that Awards are either exempt from or in compliance with Section 409A of the Code, and (iii) to ensure that Awards intended to qualify as "qualified performance-based compensation" under Section 162(m) of the Code so qualify. If required by applicable law (including Sections 422 and 162(m) of the Code) or listing requirements, and except as provided in Section 9(a) relating to Capitalization Adjustments, the Company will seek stockholder approval of any amendment of the Plan that (A) increases the number of shares of Common Stock available for issuance under the Plan, (B) expands the class of individuals eligible to receive Awards under the Plan, (C) materially increases the benefits accruing to Participants under the Plan, (D) reduces the price at which shares of Common Stock may be issued or purchased under the Plan, (E) extends the term of the Plan, or (F) expands the types of Awards available for issuance under the Plan. Except as otherwise provided in the Plan or an Award Agreement, no amendment of the Plan will materially impair a Participant's rights under an outstanding Award without the Participant's written consent.

(vii) To submit any amendment to the Plan for stockholder approval, including, but not limited to, amendments to the Plan intended to satisfy the requirements of (A) Section 162(m) of the Code regarding the exclusion of performance-based compensation from the limit on corporate deductibility of compensation paid to Covered Employees, (B) Section 422 of the Code regarding "incentive stock options" or (C) Rule 16b-3.

(viii) To approve forms of Award Agreements for use under the Plan and to amend the terms of any one or more Awards, including, but not limited to, amendments to provide terms more favorable to the Participant than previously provided in the Award Agreement, subject to any specified limits in the Plan that are not subject to Board discretion; *provided, however,* that a Participant's rights under any Award will not be impaired by any such amendment unless (A) the Company requests the consent of the affected Participant, and (B) such Participant consents in writing. Notwithstanding the foregoing, (1) a Participant's rights will not be deemed to have been impaired by any such amendment if the Board, in its sole discretion, determines that the amendment, taken as a whole, does not materially impair the Participant's rights, and (2) subject to the limitations of applicable law, if any, the Board may amend the terms of any one or more Awards without the affected Participant's consent (A) to maintain the qualified status of the Award as an Incentive Stock Option under Section 422 of the Code; (B) to maintain the status of an Award as "qualified performance-based compensation" under Section 162(m) of the Code; (C) to ensure an Award is either exempt from

or in compliance with Section 409A of the Code; or (D) to comply with other applicable laws or listing requirements. Notwithstanding the foregoing, moreover, without the Participant's consent, (i) the Board may not amend an Incentive Stock Option in a manner that would cause it to fail to qualify as an "incentive stock option" under Section 422 of the Code, and (ii) the Board may not amend an Award in a manner that would cause it to cease to be either exempt from or in compliance with Section 409A of the Code.

(ix) Generally, to exercise such powers and to perform such acts as the Board deems necessary or expedient to promote the best interests of the Company and that are not in conflict with the provisions of the Plan or Awards.

(x) To adopt such procedures and sub-plans as are necessary or appropriate to permit participation in the Plan by Employees, Directors or Consultants who are foreign nationals or employed outside the United States (provided that Board approval will not be necessary for immaterial modifications to the Plan or any Award Agreement that are required for compliance with the laws of the relevant foreign jurisdiction).

(xi) To effect, with the consent of any adversely affected Participant, (A) the reduction of the exercise, purchase or strike price of any outstanding Stock Award to a price not less than the Fair Market Value of the Common Stock underlying the Stock Award as of the date of the reduction; (B) the cancellation of any outstanding Stock Award and the grant in substitution therefor of a new (1) Option or SAR, (2) Restricted Stock Award, (3) Restricted Stock Unit Award, (4) Other Stock Award, (5) cash and/or (6) other valuable consideration determined by the Board, in its sole discretion, with any such substituted award (x) covering the same or a different number of shares of Common Stock as the cancelled Stock Award and (y) granted under the Plan or another equity or compensatory plan of the Company; or (C) any other action that is treated as a repricing under generally accepted accounting principles.

(c) Delegation to Committee.

(i) General. The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration of the Plan is delegated to a Committee, the Committee will have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to a subcommittee of the Committee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board will thereafter be to the Committee or subcommittee, as applicable). Any delegation of administrative powers will be reflected in resolutions, not inconsistent with the provisions of the Plan, adopted from time to time by the Board or Committee (as applicable). The Board may retain the authority to concurrently administer the Plan with the Committee and may, at any time, revest in the Board some or all of the powers previously delegated.

(ii) Section 162(m) and Rule 16b-3 Compliance. The Committee shall consist of two or more individuals each of whom is both an Outside Director, in accordance with Section 162(m) of the Code, and a Non-Employee Director, in accordance with Rule 16b-3.

(d) Delegation to an Officer. The Board may delegate to one (1) or more Officers the authority to do one or both of the following (i) designate Employees who are not Officers to be recipients of Options and SARs (and, to the extent permitted by applicable law, other Stock Awards) and, to the extent permitted by applicable law and subject to the terms of the Plan, the terms of such Awards, and (ii) determine the number of shares of Common Stock to be subject to such Stock Awards granted to such Employees; *provided*, *however*, that the Board resolutions regarding such delegation will specify the total number of shares of Common Stock that may be subject to the Stock Awards granted by such Officer and that such Officer may not grant a Stock Award to himself or herself. Any such Stock Awards will be granted on the form of Stock Award Agreement most recently approved for use by the Committee or the Board, unless otherwise provided in the resolutions approving the delegation authority. The Board may not delegate authority to an Officer who is acting solely in the capacity of an Officer (and not also as a Director) to determine the Fair Market Value pursuant to Section 13(w)(iii) below.

(e) Effect of Board's Decision. All determinations, interpretations and constructions made by the Board in good faith will not be subject to review by any person and will be final, binding and conclusive on all persons.

3. SHARES SUBJECT TO THE PLAN.

(a) Share Reserve.

(i) Subject to Section 9(a) relating to Capitalization Adjustments, and Section 3(a)(ii) regarding the annual increase, the aggregate number of shares of Common Stock that may be issued pursuant to Stock Awards will not exceed the sum of (A) 2,400,000 new shares, *plus* (B) the number of shares that are Returning Shares, as such shares become available from time to time (the "***Share Reserve***").

(ii) In addition, the Share Reserve will automatically increase on January 1st of each year, for a period of not more than ten years from the date the Plan is approved by the stockholders of the Company, commencing on January 1st of the year following the year in which the IPO Date occurs and ending on (and including) January 1, 2026, to an amount equal to 20% of the Fully-Diluted Shares as of December 31st of the preceding calendar year. Notwithstanding the foregoing, the Board may act prior to January 1st of a given year to provide that there will be no January 1st increase in the Share Reserve for such year or that the increase in the Share Reserve for such year will be a lesser number of shares of Common Stock than would otherwise occur pursuant to the preceding sentence.

(iii) For clarity, the Share Reserve in this Section 3(a) is a limitation on the number of shares of Common Stock that may be issued pursuant to the Plan. Accordingly, this Section 3(a) does not limit the granting of Stock Awards except as provided in Section 7(a).

(iv) Shares may be issued in connection with a merger or acquisition as permitted by NASDAQ Listing Rule 5635(c) or, if applicable, NYSE Listed Company Manual Section 303A.08, AMEX Company Guide Section 711 or other applicable rule, and such issuance will not reduce the number of shares available for issuance under the Plan.

(b) Reversion of Shares to the Share Reserve. If a Stock Award or any portion thereof (i) expires or otherwise terminates without all of the shares covered by such Stock Award having been issued or (ii) is settled in cash (*i.e.*, the Participant receives cash rather than stock), such expiration, termination or settlement will not reduce (or otherwise offset) the number of shares of Common Stock that may be available for issuance under the Plan. If any shares of Common Stock issued pursuant to a Stock Award are forfeited back to or repurchased by the Company pursuant to the terms of the Plan or applicable Award Agreement (including, without limitation, because of the failure to meet a contingency or condition required to vest such shares in the Participant), then the shares that are forfeited or repurchased will revert to and again become available for issuance under the Plan. For purposes of this Section 3, any shares retained by the Company in satisfaction of tax withholding obligations on a Stock Award or as consideration for the exercise or purchase price of a Stock Award will be treated as

having been issued to the Participant, reacquired by the Company from the Participant, and again available for issuance under the Plan. Shares that again become available for issuance under the Plan as provided in this paragraph (b) are referred to as "***Returning Shares***".

(c) Incentive Stock Option Limit. Subject to the provisions of Section 9(a) relating to Capitalization Adjustments and 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 will be 4,800,000 shares of Common Stock.

(d) Section 162(m) Limitations. Subject to the provisions of Section 9(a) relating to Capitalization Adjustments, at such time as the Company may be subject to the applicable provisions of Section 162(m) of the Code, the following limitations shall apply.

(i) A maximum of 1,000,000 shares of Common Stock subject to Options, SARs and Other Stock Awards whose value is determined by reference to an increase over an exercise or strike price of at least 100% of the Fair Market Value on the date the Stock Award is granted may be granted to any one Participant during any one calendar year; provided, however, that shares covered by an Option or SAR continue to count against such per-Participant limitation notwithstanding cancellation of the Option or SAR after its issuance and, for this purpose, a reduction in the exercise price of an Option or SAR after its issuance shall be treated as a cancellation and reissuance of the Option or SAR, so that the shares covered by both the originally granted Option and SAR and the repriced Option and SAR count against such per-Participant limitation. A maximum of 1,000,000 shares of Common Stock subject to Performance Stock Awards may be granted to any one Participant during any one calendar year (whether the grant, vesting or exercise is contingent upon the attainment during the Performance Period of the Performance Goals).

(ii) A maximum of $1,000,000 may be paid pursuant to a Performance Cash Award to any one Participant during any one calendar year.

(e) Source of Shares. The stock issuable under the Plan will be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market or otherwise.

4. ELIGIBILITY.

(a) Eligibility for Specific Stock Awards. Incentive Stock Options may be granted only to employees of the Company or a "parent corporation" or "subsidiary corporation" thereof (as such terms are defined in Sections 424(e) and 424(f) of the Code). Stock Awards other than Incentive Stock Options may be granted to Employees, Directors and Consultants.

(b) Ten Percent Stockholders. A Ten Percent Stockholder may not be granted an Incentive Stock Option unless the exercise price of such Option is at least 110% of the Fair Market Value of the Common Stock underlying the Option on the date of grant and the Option is not exercisable after the expiration of five years from the date of grant.

5. PROVISIONS RELATING TO OPTIONS AND STOCK APPRECIATION RIGHTS.

Each Option or SAR will be in such form and will contain such terms and conditions as the Board deems appropriate. All Options will be separately designated Incentive Stock Options or Nonstatutory Stock Options at the time of grant, and, if certificates are issued, a separate certificate or certificates will be issued for shares of Common Stock purchased on exercise of each type of Option. If an Option is not specifically designated as an Incentive Stock Option, or if an Option is designated as an Incentive Stock Option but some portion or all of the Option fails to qualify as an Incentive Stock Option under Section 422 of the Code, then the Option (or portion thereof) will be a Nonstatutory Stock Option. The provisions of separate Options or SARs need not be identical; *provided, however*, that each Award Agreement will conform to (through incorporation of provisions hereof by reference in the applicable Award Agreement or otherwise) the substance of each of the following provisions:

(a) Term. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, no Option or SAR will be exercisable after the expiration of ten years from the date of its grant or such shorter period specified in the Award Agreement.

(b) Exercise Price. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, the exercise or strike price of each Option or SAR will be not less than 100% of the Fair Market Value of the Common Stock subject to the Option or SAR on the date the Award is granted. Notwithstanding the foregoing, an Option or SAR may be granted with an exercise or strike price lower than 100% of the Fair Market Value of the Common Stock subject to the Award if such Award is granted pursuant to an assumption of or substitution for another option or stock appreciation right pursuant to a Corporate Transaction and in a manner consistent with the provisions of Section 409A and, if applicable, Section 424(a) of the Code.

(c) Exercise of Options. When and to the extent exercisable in accordance with the terms of the Plan and the applicable Award Agreement, a Participant may exercise an Option and acquire ownership of the underlying Common Stock by providing written notice of exercise to the Company on a form approved by the Board, accompanied by payment or arrangement for payment in the manner provided in this Section 5(c) of the exercise price of Common Stock acquired pursuant to the exercise of an Option. The exercise price of an Option may be paid, to the extent permitted by applicable law and as determined by the Board in its sole discretion, by any combination of the methods of payment set forth below. The Board will have the authority to grant Options that do not permit all of the following methods of payment (or that otherwise restrict the ability to use certain methods) and to grant Options that require the consent of the Company to use a particular method of payment. The permitted methods of payment are as follows:

(i) by cash, check, bank draft or money order payable to the Company;

(ii) pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of the stock subject to the Option, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to a broker selling such stock to pay the aggregate exercise price to the Company from the sales proceeds;

(iii) by delivery to the Company (either by actual delivery or attestation) of shares of Common Stock;

(iv) if an Option is a Nonstatutory Stock Option, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issuable upon exercise by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price, with the Participant paying cash or other permissible form of payment of any remaining balance of the aggregate exercise price not satisfied by such reduction in

the number of whole shares to be issued. Shares of Common Stock will no longer be subject to an Option and may not be purchased under the Option thereafter to the extent that (A) shares issuable upon exercise are used to pay the exercise price pursuant to the "net exercise," (B) shares are delivered to the Participant as a result of such exercise, and (C) shares are withheld to satisfy tax withholding obligations; or

(v) in any other form of legal consideration that may be acceptable to the Board and specified in the applicable Award Agreement.

(d) Exercise and Payment of a SAR. When and to the extent exercisable in accordance with the terms of the Plan and the applicable Award Agreement, a Participant may exercise an SAR by providing written notice of exercise to the Company on a form approved by the Board. Upon exercise of a

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SAR, the Participant shall be entitled to receive the excess, if any, of (A) the aggregate Fair Market Value (on the date of the exercise of the SAR) of the number of shares of Common Stock with respect to which the Participant is exercising the SAR on such date, over (B) the aggregate exercise or strike price of such number of shares of Common Stock. Such amount may be paid in Common Stock, in cash, in any combination of the two or in any other form of consideration, as determined by the Board and contained in the Award Agreement evidencing such SAR.

(e) Transferability of Options and SARs. The following restrictions on the transferability of Options and SARs will apply:

(i) Restrictions on Transfer. Except as provided in subsections (ii) and (iii) below, an Option or SAR will not be transferable except by will or by the laws of descent and distribution, and will be exercisable during the lifetime of the Participant only by the Participant, *provided*, *however*, that (i) the Board may permit transfer of a Nonstatutory Option or SAR in a manner that is not prohibited by applicable securities laws, and (ii) the Board may permit transfer of an Incentive Stock Option to a trust if, under Section 671 of the Code and applicable state law, the Participant to whom the Incentive Stock Option was granted is considered the sole beneficial owner of the Incentive Stock Option while it is held in the Trust. Even if otherwise transferable under this Section 5(e), except as explicitly provided in the Plan, neither an Option nor a SAR may be transferred for consideration.

(ii) Domestic Relations Orders. Subject to the approval of the Board or a duly authorized Officer, a Nonstatutory Option or SAR may be transferred pursuant to the terms of a domestic relations order, official marital settlement agreement or other divorce or separation instrument.

(iii) Beneficiary Designation. Subject to the approval of the Board or a duly authorized Officer, a Participant may, by delivering written notice to the Company, in a form approved by the Company (or the designated broker), designate a third party who, on the death of the Participant, will thereafter be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, upon the death of the Participant, the executor or administrator of the Participant's estate will be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. However, the Company may prohibit designation of a beneficiary at any time, including due to any conclusion by the Company that such designation would be inconsistent with the provisions of applicable laws. Notwithstanding the foregoing provisions of this subsection (iii), unless otherwise provided in the applicable Award Agreement, an Option or SAR may be exercised after the death of the Participant to whom the Option or SAR was granted only if and to the extent that the Option or SAR was exercisable by the Participant as of the date of the Participant's death.

(f) Exercisability and Vesting Generally. An Option or SAR may become exercisable at such time or times (including in periodic installments that may or may not be equal) and subject to such terms and conditions (which may be based on the satisfaction of Performance Goals, Continuous Service for a specified period or other criteria) as determined by the Board in its sole discretion and set forth in the applicable Award Agreement. Any shares of Common Stock acquired upon exercise of an Option or SAR may be vested upon such exercise, or such shares may vest at such later time or times (including in periodic installments that may or may not be equal) and subject to such terms and conditions (which may be based on the satisfaction of Performance Goals, Continuous Service for a specified period or other criteria) as may be determined by the Board in its sole discretion and set forth in the applicable Award Agreement. The exercise or vesting provisions of individual Options or SARs (or of shares of Common Stock acquired upon exercise of individual Options or SARs) may vary. The provisions of this Section 5(f) are subject to any Option or SAR provisions governing the minimum number of shares of Common Stock as to which an Option or SAR may be exercised.

(g) Termination of Continuous Service. Except as otherwise provided in the applicable Award Agreement or other agreement between the Participant and the Company or any Affiliate, if a Participant's Continuous Service terminates (other than for Cause and other than upon the Participant's death or Disability), the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Award as of the date of termination of Continuous Service) within the period of time ending on the earlier of (i) the date three months following the termination of the Participant's Continuous Service (or such longer or shorter period specified in the applicable Award Agreement), and (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR (as applicable) within the applicable time frame, the Option or SAR will terminate. Exercise of any portion of an Incentive Stock Option more than three months following termination of a Participant's Continuous Service (other than termination of Continuous Service due to the Participant's death or Disability) will cause that portion of the Option to become a Nonstatutory Option.

(h) Extension of Termination Date. If the exercise of an Option or SAR following the termination of the Participant's Continuous Service (other than for Cause and other than upon the Participant's death or Disability) would be prohibited at any time solely because the issuance of shares of Common Stock would violate the registration requirements under the Securities Act, then the Option or SAR will terminate on the earlier of (i) the expiration of a total period of time (that need not be consecutive) equal to the applicable post termination exercise period after the termination of the Participant's Continuous Service during which the exercise of the Option or SAR would not be in violation of such registration requirements, and (ii) the expiration of the term of the Option or SAR as set forth in the applicable Award Agreement. In addition, unless otherwise provided in a Participant's Award Agreement, if the sale of any Common Stock received on exercise of an Option or SAR following the termination of the Participant's Continuous Service (other than for Cause) would violate the Company's insider trading policy, then the Option or SAR will terminate on the earlier of (i) the expiration of a period of months (that need not be consecutive) equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the sale of the Common Stock received upon exercise of the Option or SAR would not be in violation of the Company's insider trading policy, or (ii) the expiration of the term of the Option or SAR as set forth in the applicable Award Agreement. Exercise of any portion of an Incentive Stock Option more than three months following termination of a Participant's Continuous Service (or more than 12 months after termination of Continuous Service due to the Participant's Disability or more than 12 months after the death of the Participant in the circumstances set forth in Section 5(j)) will cause that portion of the Option to become a Nonstatutory Option.

(i) Disability of Participant. Except as otherwise provided in the applicable Award Agreement or other agreement between the Participant and the Company or any Affiliate, if a Participant's Continuous Service terminates as a result of the Participant's Disability, the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of termination of Continuous Service), but only within such

period of time ending on the earlier of (i) the date 12 months following such termination of Continuous Service (or such longer or shorter period specified in the Award Agreement), and (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR within the applicable time frame, the Option or SAR (as applicable) will terminate. Exercise of any portion of an Incentive Stock Option more than 12 months following termination of the Participant's employment due to Disability will cause that portion of the Option to become a Nonstatutory Option.

(j) Death of Participant. Except as otherwise provided in the applicable Award Agreement or other agreement between the Participant and the Company or any Affiliate, if (i) a Participant's Continuous Service terminates as a result of the Participant's death, or (ii) the Participant dies within the

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period (if any) specified in the Award Agreement for exercisability after the termination of the Participant's Continuous Service for a reason other than death, then the Option or SAR may be exercised (to the extent the Participant was entitled to exercise such Option or SAR as of the date of death) by the Participant's estate, by a person who acquired the right to exercise the Option or SAR by bequest or inheritance or by a person designated to exercise the Option or SAR upon the Participant's death, but only within the period ending on the earlier of (i) the date 18 months following the date of death (or such longer or shorter period specified in the Award Agreement), and (ii) the expiration of the term of such Option or SAR as set forth in the Award Agreement. If, after the Participant's death, the Option or SAR is not exercised within the applicable time frame, the Option or SAR (as applicable) will terminate. Exercise of any portion of an Incentive Stock Option more than 12 months following the death of the Participant in the circumstances set forth in this Section 5(j) will cause that portion of the Option to become a Nonstatutory Option.

(k) Termination for Cause. Except as explicitly provided otherwise in a Participant's Award Agreement or other individual written agreement between the Company or any Affiliate and the Participant, if a Participant's Continuous Service is terminated for Cause, the Option or SAR will terminate immediately upon such Participant's termination of Continuous Service, and the Participant will be prohibited from exercising his or her Option or SAR from and after the time of such termination of Continuous Service.

(l) Non-Exempt Employees. If an Option or SAR is granted to an Employee who is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, the Option or SAR will not be first exercisable for any shares of Common Stock until at least six months following the date of grant of the Option or SAR (although the Award may vest prior to such date). Consistent with the provisions of the Worker Economic Opportunity Act, (i) if such non-exempt Employee dies or suffers a Disability, (ii) upon a Corporate Transaction in which such Option or SAR is not assumed, continued, or substituted, (iii) upon a Change in Control, or (iv) upon the Participant's retirement (as such term may be defined in the Participant's Award Agreement or in another agreement between the Participant and the Company or any Affiliate or, in the absence of such definition, in accordance with the Company's then current employment policies and guidelines), the portion of any Options and SARs otherwise exercisable (but for this Section 5(l)) may be exercised earlier than six months following the date of grant. The foregoing provision is intended to operate so that any income derived by a non-exempt employee in connection with the exercise or vesting of an Option or SAR or the underlying Common Shares will be exempt from his or her regular rate of pay. To the extent permitted and/or required for compliance with the Worker Economic Opportunity Act to ensure that any income derived by a non-exempt employee in connection with the exercise, vesting or issuance of any shares under any other Stock Award will be exempt from the employee's regular rate of pay, the provisions of this Section 5(l) will apply to all Stock Awards and are hereby incorporated by reference into such Stock Award Agreements.

6. PROVISIONS OF STOCK AWARDS OTHER THAN OPTIONS AND SARS.

(a) Restricted Stock Awards. Each Restricted Stock Award Agreement will be in such form and will contain such terms and conditions as the Board will deem appropriate. To the extent consistent with the Company's bylaws, at the Board's election, shares of Common Stock that are the subject of a Restricted Stock Award may be (x) held in book entry form subject to the Company's instructions until any restrictions relating to the Restricted Stock Award lapse; or (y) evidenced by a certificate, which certificate will be held in such form and manner as determined by the Board. The terms and conditions of Restricted Stock Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Award Agreements need not be identical. Each Restricted Stock Award Agreement will conform to (through incorporation of the provisions hereof by reference in the agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. A Restricted Stock Award may be awarded in consideration for (A) cash, check, bank draft or money order payable to the Company, (B) past or future services to the Company or an Affiliate, or (C) any other form of legal consideration that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. Shares of Common Stock awarded under the Restricted Stock Award Agreement may be subject to forfeiture to the Company in accordance with a vesting schedule to be determined by the Board.

(iii) Termination of Participant's Continuous Service. If a Participant's Continuous Service terminates, the Company may receive through a forfeiture condition or a repurchase right any or all of the shares of Common Stock held by the Participant that have not vested as of the date of termination of Continuous Service under the terms of the Restricted Stock Award Agreement.

(iv) Transferability. Shares of Common Stock granted under the Restricted Stock Award Agreement will not be transferable by the Participant except upon such terms and conditions as are set forth in the Restricted Stock Award Agreement, as the Board will determine in its sole discretion, so long as Common Stock awarded under the Restricted Stock Award Agreement remains subject to the terms of the Restricted Stock Award Agreement.

(v) Dividends. A Restricted Stock Award Agreement may provide for the handling of any dividends otherwise payable on unvested Restricted Stock in such manner as the Board in its discretion deems appropriate, including (i) current distribution to the Participant of dividends otherwise payable on unvested Restricted Stock, (ii) no distribution of any dividends to the Participant otherwise payable on unvested Restricted Stock, or (iii) retention of dividends otherwise payable on unvested Restricted Stock until and if the Restricted Stock becomes vested.

(b) Restricted Stock Unit Awards. Each Restricted Stock Unit Award Agreement will be in such form and will contain such terms and conditions as the Board may deem appropriate. The terms and conditions of Restricted Stock Unit Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Unit Award Agreements need not be identical. Each Restricted Stock Unit Award Agreement will conform to (through incorporation of the provisions hereof by reference in the Agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. At the time of grant of a Restricted Stock Unit Award, the Board will determine the consideration, if any, to be paid by the Participant upon delivery of each share of underlying Common Stock (or of cash equal to the value of such Common Stock). For clarity, the Board need not

require the payment of any consideration for the settlement (or grant) of a Restricted Stock Unit Award, other than past or future services rendered or to be rendered by the Participant.

(ii) Vesting. At the time of the grant of a Restricted Stock Unit Award, the Board may impose such restrictions on or conditions to the vesting of the Restricted Stock Unit Award as it, in its sole discretion, deems appropriate.

(iii) Payment. A Restricted Stock Unit Award may be settled by the delivery of shares of Common Stock, their cash equivalent, any combination thereof or in any other form of consideration, as determined by the Board and contained in the Restricted Stock Unit Award Agreement.

(iv) Additional Restrictions. At the time of the grant of a Restricted Stock Unit Award, the Board, as it deems appropriate, may impose such restrictions or conditions that delay the delivery of the shares of Common Stock (or their cash equivalent) subject to a Restricted Stock Unit

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Award to a time after the vesting of such Restricted Stock Unit Award provided that, notwithstanding such restrictions or conditions, the Restricted Stock Unit Award is either exempt from or in compliance with Section 409A of the Code.

(v) Dividend Equivalents. Dividend equivalents may be credited in respect of shares of Common Stock covered by a Restricted Stock Unit Award, as determined by the Board and contained in the Restricted Stock Unit Award Agreement. At the sole discretion of the Board, such dividend equivalents may be converted into additional shares of Common Stock covered by the Restricted Stock Unit Award in such manner as determined by the Board. Any additional shares covered by the Restricted Stock Unit Award credited by reason of such dividend equivalents will be subject to all of the same terms and conditions as the underlying Restricted Stock Unit Award Agreement to which they relate.

(vi) Termination of Participant's Continuous Service. Except as otherwise provided in the applicable Restricted Stock Unit Award Agreement, such portion of the Restricted Stock Unit Award that has not vested will be forfeited upon the Participant's termination of Continuous Service.

(c) Performance Awards.

(i) Performance Stock Awards. A Performance Stock Award is a Stock Award (covering a number of shares not in excess of that set forth in Section 3(d) above) that is payable (including that may be granted, may vest or may be exercised) contingent upon the attainment during a Performance Period of certain Performance Goals. A Performance Stock Award may also, but need not, require the Participant's completion of a specified period of Continuous Service. The length of any Performance Period, the Performance Goals to be achieved during the Performance Period, and the measure of whether and to what degree such Performance Goals have been attained will be conclusively determined by the Committee (or, if not required for compliance with Section 162(m) of the Code, the Board), in its sole discretion. In addition, to the extent permitted by applicable law (including Section 162(m) of the Code in the case of a Performance Stock Award intended to qualify as "qualified performance-based compensation" under such provision) and the applicable Award Agreement, the Board may determine that cash may be used in payment of Performance Stock Awards.

(ii) Performance Cash Awards. A Performance Cash Award is a cash award (for a dollar value not in excess of that set forth in Section 3(d) above) that is payable contingent upon the attainment during a Performance Period of certain Performance Goals. A Performance Cash Award may also require the completion of a specified period of Continuous Service. At the time of grant of a Performance Cash Award, the length of any Performance Period, the Performance Goals to be achieved during the Performance Period, and the measure of whether and to what degree such Performance Goals have been attained will be conclusively determined by the Committee (or, if not required for compliance with Section 162(m) of the Code, the Board), in its sole discretion. The Board may specify the form of payment of Performance Cash Awards, which may be cash or other property, or may provide for a Participant to have the option for his or her Performance Cash Award, or such portion thereof as the Board may specify, to be paid in whole or in part in cash or other property.

(iii) Board Discretion. The Board retains the discretion to reduce or eliminate the compensation or economic benefit due upon attainment of Performance Goals and to define the manner of calculating the Performance Criteria it selects to use for a Performance Period, provided that, in the case of a Performance Award intended to qualify as "qualified performance-based compensation under Section 162(m) of the Code, such negative discretion is exercised in a manner that will not undermine such qualification of such Award or any other Award intended to also so qualify. Partial achievement of the

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specified criteria may result in the payment or vesting corresponding to the degree of achievement as specified in the Stock Award Agreement or the written terms of a Performance Cash Award.

(iv) Section 162(m) Compliance. The Committee will establish the Performance Goals applicable to, and the formula for calculating the amount payable under, a Performance Award no later than the earlier of (a) the date 90 days after the commencement of the applicable Performance Period, and (b) the date on which 25% of the Performance Period has elapsed, and in any event at a time when the achievement of the applicable Performance Goals remains substantially uncertain. Prior to the payment of any compensation under an Award intended to qualify as "qualified performance-based compensation" under Section 162(m) of the Code, the Committee will certify in writing the extent to which any Performance Goals and any other material terms under such Award have been satisfied (other than in cases where such Performance Goals relate solely to the increase in the value of the Common Stock). Notwithstanding satisfaction of, or completion of any Performance Goals, but subject to the proviso regarding negative discretion in the first sentence of Section 6(c)(iii), the number of shares of Common Stock, Options, cash or other benefits granted, issued, retainable and/or vested under an Award on account of satisfaction of such Performance Goals may be reduced by the Committee on the basis of such further considerations as the Committee, in its sole discretion, will determine.

(d) Other Stock Awards. Other forms of Stock Awards valued in whole or in part by reference to, or otherwise based on, Common Stock, including the appreciation in value thereof (e.g., options or stock rights with an exercise price or strike price not less than 100% of the Fair Market Value of the Common Stock at the time of grant) may be granted either alone or in addition to Stock Awards provided for under Section 5 and the preceding provisions of this Section 6. Subject to the provisions of the Plan, the Board will have sole and complete authority to determine the persons to whom and the time or times at which such Other Stock Awards will be granted, the number of shares of Common Stock (or the cash equivalent thereof) to be granted pursuant to such Other Stock Awards and all other terms and conditions of such Other Stock Awards.

7. COVENANTS OF THE COMPANY.

(a) Availability of Shares. The Company will keep available at all times the number of shares of Common Stock reasonably required to satisfy then-outstanding Awards.

(b) Securities Law Compliance. The Company will seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority as may be required to grant Stock Awards and to issue and sell shares of Common Stock upon exercise or settlement of the Stock Awards; *provided, however* , that this undertaking will not require the Company to register under the Securities Act the Plan, any Stock Award or any Common Stock issued or issuable pursuant to any such Stock Award. If, after reasonable efforts and at a reasonable cost, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary for the lawful issuance and sale of Common Stock under the Plan, the Company will be relieved from any liability for failure to issue and sell Common Stock upon exercise of such Stock Awards unless and until such authority is obtained. A Participant will not be eligible for the grant of an Award or the subsequent issuance of cash or Common Stock pursuant to the Award if such grant or issuance would be in violation of any applicable securities law.

(c) No Obligation to Notify or Minimize Taxes. The Company will have no duty or obligation to advise any Participant of the time or manner of exercising a Stock Award. Furthermore, the Company will have no duty or obligation to warn or otherwise advise a Participant of a pending termination or expiration of an Award or a possible period in which an Award may not be exercised or

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settled. The Company has no duty or obligation to minimize the tax consequences of an Award to the holder of such Award.

8. MISCELLANEOUS.

(a) Use of Proceeds from Sales of Common Stock. Proceeds from the sale of shares of Common Stock pursuant to Awards will constitute general funds of the Company.

(b) Corporate Action Constituting Grant of Awards. Corporate action constituting a grant by the Company of an Award to any Participant will be deemed completed as of the date of such corporate action, unless otherwise determined by the Board, regardless of when the instrument, certificate, or letter evidencing the Award is communicated to, or actually received or accepted by, the Participant, provided that such instrument, certificate or letter is communicated to, or actually received or accepted by, the Participant within a reasonable period of time after such corporate action. In the event that the corporate records (e.g., Board consents, resolutions or minutes) documenting the corporate action constituting the grant contain terms (e.g., exercise price, vesting schedule or number of shares) that are inconsistent with those in the Award Agreement or related grant documents as a result of a clerical error in the papering of the Award Agreement or related grant documents, the corporate records will control and the Participant will have no legally binding right to the incorrect term in the Award Agreement or related grant documents.

(c) Stockholder Rights. No Participant will be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Common Stock subject to an Award unless and until (i) such Participant has satisfied all requirements for exercise of, or the issuance of shares of Common Stock under, the Award pursuant to its terms, and (ii) the issuance of the Common Stock subject to such Award has been entered into the books and records of the Company.

(d) No Employment or Other Service Rights. Nothing in the Plan, any Award Agreement or any other instrument executed thereunder or in connection with any Award granted pursuant thereto will confer upon any Participant any right to continue to serve the Company or an Affiliate in the capacity in effect at the time the Award was granted (or in any other capacity) or will affect the right of the Company or an Affiliate to terminate (i) the employment of an Employee with or without notice and with or without cause, (ii) the service of a Consultant pursuant to the terms of such Consultant's agreement with the Company or an Affiliate, or (iii) the service of a Director pursuant to the bylaws of the Company or an Affiliate, and any applicable provisions of the corporate law of the state in which the Company or the Affiliate is incorporated, as the case may be.

(e) Change in Time Commitment. In the event a Participant's regular level of time commitment in the performance of his or her services for the Company and any Affiliates is reduced (for example, and without limitation, if the Participant is an Employee of the Company and the Employee has a change in status from a full-time Employee to a part-time Employee or takes an extended leave of absence) after the date of grant of any Award to the Participant, the Board has the right in its sole discretion to (x) make a corresponding reduction in the number of shares or cash amount subject to any portion of such Award that is scheduled to vest or become payable after the date of such change in time commitment, and (y) in lieu of or in combination with such a reduction, extend the vesting or payment schedule applicable to such Award; provided, however, that no such action may be taken if it would result in the Participant incurring liability for additional tax under Section 409A of the Code. In the event of any such reduction, the Participant will have no right with respect to any portion of the Award that is so reduced.

(f) Incentive Stock Option Limitations. To the extent that the aggregate Fair Market Value (determined at the time of grant) of Common Stock with respect to which Incentive Stock Options are exercisable for the first time by any Optionholder during any calendar year (under all plans of the Company and any Affiliates) exceeds $100,000 (or such other limit established in the Code), or if an Option although designated as and intended to be an Incentive Stock Option otherwise does not comply with the rules governing Incentive Stock Options, the Options or portions thereof that exceed such limit (according to the order in which they were granted) or otherwise do not comply with such rules will be treated as Nonstatutory Stock Options, notwithstanding any contrary provision of the applicable Option Agreement(s).

(g) Investment Assurances. The Company may require a Participant, as a condition of exercising or acquiring Common Stock under any Award, (i) to give written assurances satisfactory to the Company as to the Participant's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters and that such Participant is capable of evaluating, alone or together with the purchaser representative, the merits and risks of exercising or acquiring Common Stock under the Award; and (ii) to give written assurances satisfactory to the Company stating that the Participant is acquiring Common Stock subject to the Award for the Participant's own account and not with any present intention of selling or otherwise distributing the Common Stock. The foregoing requirements, and any assurances given pursuant to such requirements, will be inoperative if (A) the issuance of the shares upon the exercise or acquisition of Common Stock under the Award has been registered under a then currently effective registration statement under the Securities Act, or (B) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws. The Company may, upon advice of counsel to the Company, place legends on certificates for Common Stock issued under the Plan as such counsel deems necessary or appropriate in order to comply with applicable securities laws, including, but not limited to, legends restricting the transfer of the Common Stock.

(h) Withholding Obligations. The Company may, in its sole discretion, satisfy any federal, state or local tax withholding obligation relating to an Award by any of the following means or by a combination of such means: (i) requiring the Participant to tender a cash payment; (ii) withholding shares of

Common Stock from the shares of Common Stock issued or otherwise issuable to the Participant in connection with the Award; *provided, however,* that no shares of Common Stock are withheld with a value exceeding the minimum amount of tax required to be withheld by law (or such lesser amount as may be necessary to avoid classification of the Stock Award as a liability for financial accounting purposes); (iii) withholding cash from an Award settled in cash; (iv) withholding payment from any amounts otherwise payable to the Participant; or (v) by such other method as may be set forth in the Award Agreement.

(i) Electronic Delivery. Any reference herein to a "written" agreement or document will include any agreement or document delivered electronically, filed publicly at www.sec.gov (or any successor website thereto) or posted on the Company's intranet (or other shared electronic medium controlled by the Company to which the Participant has access).

(j) Deferrals. To the extent permitted by applicable law, the Board, in its sole discretion, may determine that the delivery of Common Stock or the payment of cash, upon the exercise, vesting or settlement of all or a portion of any Award may be deferred and may establish programs and procedures for deferral elections to be made by Participants. Deferrals by Participants will be made in a manner such that the affected Award is (or remains) exempt from or in compliance with Section 409A of the Code. Consistent with Section 409A of the Code, the Board may provide for distributions while a Participant is still an employee or otherwise providing services to the Company. The Board is authorized to make

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deferrals of Awards and determine when, and in what annual percentages, Participants may receive payments, including lump sum payments, following the Participant's termination of Continuous Service, and implement such other terms and conditions consistent with the provisions of the Plan, in accordance with applicable law and in a manner such that the affected Award is (or remains) either exempt from or in compliance with Section 409A of the Code.

(k) Compliance with Section 409A of the Code. The Plan and Award Agreements will be interpreted and administered to the greatest extent possible in a manner that makes the Plan and the Awards granted hereunder exempt from Section 409A of the Code, and, to the extent not so exempt, in compliance with Section 409A of the Code. If the Board determines that any Award granted hereunder is not exempt from and is therefore subject to Section 409A of the Code, the Award Agreement evidencing such Award will include the terms and conditions necessary to avoid the consequences specified in Section 409A(a)(1) of the Code. Notwithstanding anything to the contrary in this Plan, if the shares of Common Stock are publicly traded, and if a Participant holding an Award that constitutes "deferred compensation" under Section 409A of the Code is a "specified employee" for purposes of Section 409A of the Code, no distribution or payment of any amount that is due because of a "separation from service" (as defined in Section 409A of the Code without regard to alternative definitions thereunder) will be issued or paid before the date that is six months following the date of such Participant's "separation from service" (as defined in Section 409A of the Code without regard to alternative definitions thereunder) or, if earlier, the date of the Participant's death, unless such distribution or payment can be made in a manner that complies with Section 409A of the Code, and any amounts so deferred will be paid in a lump sum on the day after such six month period elapses, with the balance paid thereafter on the original schedule.

(l) Clawback/Recovery. All Awards granted under the Plan will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Board may impose such other clawback, recovery or recoupment provisions in an Award Agreement as the Board determines necessary or appropriate, including but not limited to a reacquisition right in respect of previously acquired shares of Common Stock or other cash or property upon the occurrence of an event constituting Cause. No recovery of compensation under such a clawback policy will be an event giving rise to a right to resign for "good reason" or "constructive termination" (or similar term) under any agreement with the Company.

9. ADJUSTMENTS UPON CHANGES IN COMMON STOCK; OTHER CORPORATE EVENTS.

(a) Capitalization Adjustments. In the event of a Capitalization Adjustment, the Board will appropriately and proportionately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a), (ii) the class(es) and maximum number of securities that may be issued pursuant to the exercise of Incentive Stock Options pursuant to Section 3(c), (iii) the class(es) and maximum number of securities that may be awarded to any person pursuant to Sections 3(d) and 3(e), and (iv) the class(es) and number of securities and price per share of stock subject to outstanding Stock Awards. The Board will make such adjustments, and its determination will be final, binding and conclusive.

(b) Dissolution or Liquidation. Except as otherwise provided in the Stock Award Agreement, in the event of a dissolution or liquidation of the Company, all outstanding Stock Awards (other than Stock Awards consisting of vested and outstanding shares of Common Stock not subject to a forfeiture condition or the Company's right of repurchase) will terminate immediately prior to the completion of such dissolution or liquidation, and the shares of Common Stock subject to the Company's repurchase rights or subject to a forfeiture condition may be repurchased or reacquired by the Company

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notwithstanding the fact that the holder of such Stock Award is providing Continuous Service; *provided*, *however*, that the Board may, in its sole discretion, cause some or all Stock Awards to become fully vested, exercisable and/or no longer subject to repurchase or forfeiture (to the extent such Stock Awards have not previously expired or terminated) before the dissolution or liquidation is completed but contingent on its completion.

(c) Corporate Transaction. The following provisions will apply to Stock Awards in the event of a Corporate Transaction unless otherwise provided in the instrument evidencing the Stock Award or any other written agreement between the Company or any Affiliate and the Participant or unless otherwise expressly provided by the Board at the time of grant of a Stock Award. In the event of a Corporate Transaction, then, notwithstanding any other provision of the Plan, the Board will take one or more of the following actions with respect to Stock Awards, contingent upon the closing or completion of the Corporate Transaction:

(i) arrange for the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) to assume or continue the Stock Award or to substitute a similar stock award for the Stock Award (including, but not limited to, an award to acquire the same consideration paid to the stockholders of the Company pursuant to the Corporate Transaction), provided that, in the case of an Incentive Stock Option or other type of Stock Award that is exempt from Section 409A of the Code, such assumption, continuation or substitution is effectuated in a manner and on terms that preserve the status of an Incentive Stock Option as such under Section 422 of the Code and that preserve the status of the Stock Award as exempt from Section 409A of the Code;

(ii) arrange for the assignment of any reacquisition or repurchase rights held by the Company in respect of Common Stock issued pursuant to the Stock Award to the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company);

(iii) accelerate the vesting, in whole or in part, of the Stock Award (and, if applicable, the time at which the Stock Award may be exercised) to a date prior to the effective time of such Corporate Transaction as the Board determines (or, if the Board does not determine such a date, to the date that is five days prior to the effective date of the Corporate Transaction), with such Stock Award terminating if not exercised (if applicable) at or prior to the effective time of the Corporate Transaction, provided that such action does not cause a Stock Award that is subject to and in compliance with Section 409A of the Code to cease to comply with Section 409A of the Code;

(iv) arrange for the lapse, in whole or in part, of any reacquisition or repurchase rights held by the Company with respect to the Stock Award;

(v) cancel or arrange for the cancellation of the Stock Award, to the extent not vested or not exercised prior to the effective time of the Corporate Transaction, in exchange for such cash consideration, if any, as the Board, in its sole discretion, may consider appropriate; and

(vi) make a payment, in such form as may be determined by the Board equal to the excess, if any, of (A) the value of the property the Participant would have received upon the exercise of the Stock Award immediately prior to the effective time of the Corporate Transaction, over (B) any exercise price applicable to the Stock Award.

(d) The Board need not take the same action or actions with respect to all Stock Awards or portions thereof or with respect to all Participants. The Board may take different actions with respect to the vested and unvested portions of a Stock Award.

(e) **Change in Control.** A Stock Award may be subject to additional acceleration of vesting and exercisability upon or after a Change in Control as may be provided in the Stock Award Agreement for such Stock Award, or as may be provided in any other written agreement between the Company or any Affiliate and the Participant, or as may be determined in the discretion of the Board; otherwise no such acceleration shall occur.

10. PLAN TERM; EARLIER TERMINATION OR SUSPENSION OF THE PLAN.

The Board may suspend or terminate the Plan at any time. No Incentive Stock Options may be granted after the tenth anniversary of the earlier of (i) the date the Plan is adopted by the Board (the "***Adoption Date***"), or (ii) the date the Plan is approved by the stockholders of the Company. No Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

11. EXISTENCE OF THE PLAN; TIMING OF FIRST GRANT OR EXERCISE.

The Plan will come into existence on the Adoption Date; *provided, however*, that no Award may be granted prior to the IPO Date. In addition, no Stock Award will be exercised (or, in the case of a Restricted Stock Award, Restricted Stock Unit Award, Performance Stock Award, or Other Stock Award, no Stock Award will be granted) and no Performance Cash Award will be settled unless and until the Plan has been approved by the stockholders of the Company, which approval will be within 12 months after the date the Plan is adopted by the Board.

12. CHOICE OF LAW.

The law of the State of Delaware will govern all questions concerning the construction, validity and interpretation of this Plan, without regard to that state's conflict of laws rules.

13. DEFINITIONS.

As used in the Plan, the following definitions will apply to the capitalized terms indicated below:

(a) "***Affiliate***" means, at the time of determination, any "parent" or "subsidiary" of the Company as such terms are defined in Rule 405 of the Securities Act. The Board will have the authority to determine the time or times at which "parent" or "subsidiary" status is determined within the foregoing definition.

(b) "***Award***" means a Stock Award or a Performance Cash Award.

(c) "***Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of an Award.

(d) "***Board***" means the Board of Directors of the Company.

(e) "***Capital Stock***" means each and every class of common stock of the Company, regardless of the number of votes per share.

(f) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Stock Award after the Adoption Date without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, reverse stock split, liquidating dividend, combination of shares, exchange of

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shares, change in corporate structure or any similar equity restructuring transaction, as that term is used in Statement of Financial Accounting Standards Board Accounting Standards Codification Topic 718 (or any successor thereto). Notwithstanding the foregoing, the conversion of any convertible securities of the Company will not be treated as a Capitalization Adjustment.

(g) "***Cause***" will have the meaning ascribed to such term in any written agreement between the Participant and the Company defining such term and, in the absence of such agreement, such term means, with respect to a Participant, the occurrence of any of the following events: (i) such Participant's commission of any felony or any crime involving fraud, dishonesty or moral turpitude under the laws of the United States or any state thereof; (ii) such Participant's attempted commission of, or participation in, a fraud or act of dishonesty against the Company; (iii) such Participant's intentional, material violation of any contract or agreement between the Participant and the Company or of any statutory duty owed to the Company; (iv) such Participant's unauthorized use or disclosure of the Company's confidential information or trade secrets; or (v) such Participant's gross misconduct. The determination that a termination of the

Participant's Continuous Service is either for Cause or without Cause shall be made by the Company in its sole discretion. Any determination by the Company that the Continuous Service of a Participant was terminated by reason of dismissal without Cause for the purposes of outstanding Stock Awards held by such Participant shall have no effect upon any determination of the rights or obligations of the Company or such Participant for any other purpose.

(h) "***Change in Control***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. Notwithstanding the foregoing, a Change in Control will not be deemed to occur (A) on account of the acquisition of securities of the Company directly from the Company, (B) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company's securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities, (C) on account of the acquisition of securities of the Company by any individual who is, on the IPO Date, either an executive officer or a Director (either, an "***IPO Investor***") and/or any entity in which an IPO Investor has a direct or indirect interest (whether in the form of voting rights or participation in profits or capital contributions) of more than 50% (collectively, the "***IPO Entities***") or on account of the IPO Entities continuing to hold shares that come to represent more than 50% of the combined voting power of the Company's then outstanding securities as a result of the conversion of any class of the Company's securities into another class of the Company's securities having a different number of votes per share pursuant to the conversion provisions set forth in the Company's Amended and Restated Certificate of Incorporation; or (D) solely because the level of Ownership held by any Exchange Act Person (the "***Subject Person***") exceeds the designated percentage threshold of the outstanding voting securities as a result of a repurchase or other acquisition of voting securities by the Company reducing the number of shares outstanding, provided that if a Change in Control would occur (but for the operation of this sentence) as a result of the acquisition of voting securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional voting securities that, assuming the repurchase or other acquisition had not occurred, increases the percentage of the then outstanding voting securities Owned by the Subject Person over the designated percentage threshold, then a Change in Control will be deemed to occur;

(ii) there is consummated a merger, consolidation or similar transaction involving (directly or indirectly) the Company and, immediately after the consummation of such merger,

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consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (A) outstanding voting securities representing more than 50% of the combined outstanding voting power of the surviving Entity in such merger, consolidation or similar transaction or (B) more than 50% of the combined outstanding voting power of the parent of the surviving Entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such transaction; *provided, however*, that a merger, consolidation or similar transaction will not constitute a Change in Control under this prong of the definition if the outstanding voting securities representing more than 50% of the combined voting power of the surviving Entity or its parent are owned by the IPO Entities;

(iii) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries, other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries to an Entity, more than 50% of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition; *provided, however*, that a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries will not constitute a Change in Control under this prong of the definition if the outstanding voting securities representing more than 50% of the combined voting power of the acquiring Entity or its parent are owned by the IPO Entities; or

(iv) individuals who, on the date the Plan is adopted by the Board, are members of the Board (the "***Incumbent Board***") cease for any reason to constitute at least a majority of the members of the Board; *provided, however*, that if the appointment or election (or nomination for election) of any new Board member was approved or recommended by a majority vote of the members of the Incumbent Board then still in office, such new member will, for purposes of this Plan, be considered as a member of the Incumbent Board.

Notwithstanding the foregoing definition or any other provision of the Plan, the term Change in Control will not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company and the definition of Change in Control (or any analogous term) in an individual written agreement between the Company or any Affiliate and the Participant will supersede the foregoing definition with respect to Awards subject to such agreement; *provided, however*, that if no definition of Change in Control or any analogous term is set forth in such an individual written agreement, the foregoing definition will apply. Notwithstanding the foregoing definition or any other provision of the Plan, moreover, in the case of an Award that constitutes nonqualified deferred compensation under Section 409A of the Code, where a Change in Control is a payment trigger and not merely a vesting trigger, or where otherwise necessary to ensure that the Participant does not incur liability for additional tax under Section 409A of the Code, a transaction (or series of related transactions) shall constitute a Change in Control only if, in addition to satisfying the foregoing definition, such transaction (or series of related transactions) also satisfies the definition of a "change in control event" under Treas. Reg. Section 1.409A-3(i)(5).

(i) "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(j) "***Committee***" means a committee of one or more Directors to whom authority has been delegated by the Board in accordance with Section 2(c).

(k) "***Common Stock***" means, as of the IPO Date, the common stock of the Company, having one vote per share.

(l) "***Company***" means Gemphire Therapeutics Inc., a Delaware corporation.

(m) "***Consultant***" means any person, including an advisor, who is (i) engaged by the Company or an Affiliate to render consulting or advisory services and is compensated for such services, or (ii) serving as a member of the board of directors of an Affiliate and is compensated for such services. However, service solely as a Director, or payment of a fee for such service, will not cause a Director to be considered a "Consultant" for purposes of the Plan. Notwithstanding the foregoing, a person is treated as a Consultant under this Plan only if a Form S-8 Registration Statement under the Securities Act is available to register either the offer or the sale of the Company's securities to such person.

(n) "***Continuous Service***" means that the Participant's service with the Company or an Affiliate, whether as an Employee, Director or Consultant, is not interrupted or terminated. A change in the capacity in which the Participant renders service to the Company or an Affiliate as an Employee, Consultant or

Director or a change in the entity for which the Participant renders such service, provided that there is no interruption or termination of the Participant's service with the Company or an Affiliate, will not terminate a Participant's Continuous Service; *provided, however*, that if the Entity for which a Participant is rendering services ceases to qualify as an Affiliate, as determined by the Board, in its sole discretion, such Participant's Continuous Service will be considered to have terminated on the date such Entity ceases to qualify as an Affiliate. To the extent permitted by law, the Board or the chief executive officer of the Company, in that party's sole discretion, may determine whether Continuous Service will be considered interrupted in the case of (i) any leave of absence approved by the Board or chief executive officer, including sick leave, military leave or any other personal leave, or (ii) transfers between the Company, an Affiliate, or their successors. Notwithstanding the foregoing, a leave of absence will be treated as Continuous Service for purposes of vesting in an Award only to such extent as may be provided in the Company's leave of absence policy, in the written terms of any leave of absence agreement or policy applicable to the Participant, or as otherwise required by law. Notwithstanding the foregoing definition, in the case of an Award that constitutes nonqualified deferred compensation under Section 409A of the Code, to the extent a termination of Continuous Service is a payment event or if otherwise necessary to ensure that the Participant does not incur liability for additional tax under Section 409A of the Code, the Participant shall be considered to have experienced a termination of Continuous Service only if he has also experienced a "separation from service" within the meaning of Treas. Reg. Section 1.409A-1(h)(without regard to any alternative definitions of such term thereunder).

(o) "***Corporate Transaction***" means the consummation, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) a sale or other disposition of all or substantially all, as determined by the Board, in its sole discretion, of the consolidated assets of the Company and its Subsidiaries;

(ii) a sale or other disposition of at least 90% of the outstanding securities of the Company;

(iii) a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger,

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consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

If required for compliance with Section 409A of the Code in the case of an Award constituting nonqualified deferred compensation under such provision, in no event will a Corporate Transaction be deemed to have occurred if such transaction is not also a "change in the ownership or effective control of" the Company or "a change in the ownership of a substantial portion of the assets of" the Company as determined under Treasury Regulation Section 1.409A-3(i)(5) (without regard to any alternative definition thereunder).

(p) "***Covered Employee***" will have the meaning provided in Section 162(m)(3) of the Code.

(q) "***Director***" means a member of the Board.

(r) "***Disability***" means, with respect to a Participant, the inability of such Participant to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or that has lasted or can be expected to last for a continuous period of not less than 12 months, as provided in Sections 22(e)(3) and 409A(a)(2)(c)(i) of the Code, and will be determined by the Board on the basis of such medical evidence as the Board deems warranted under the circumstances.

(s) "***Employee***" means any person employed by the Company or an Affiliate. However, service solely as a Director, or payment of a fee for such services, will not cause a Director to be considered an "Employee" for purposes of the Plan.

(t) "***Entity***" means a corporation, partnership, limited liability company or other entity.

(u) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(v) "***Exchange Act Person***" means any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that "Exchange Act Person" will not include (i) the Company or any Subsidiary of the Company, (ii) any employee benefit plan of the Company or any Subsidiary of the Company or any trustee or other fiduciary holding securities under an employee benefit plan of the Company or any Subsidiary of the Company, (iii) an underwriter temporarily holding securities pursuant to a registered public offering of such securities, (iv) an Entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of stock of the Company; or (v) any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the IPO Date, is the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities.

(w) "***Fair Market Value***" means, as of any date, the value of the Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or traded on any established market, the Fair Market Value of a share of Common Stock will be, unless otherwise determined by the Board, the closing sales price for such stock as quoted on such exchange or market (or the exchange or market with the greatest volume of trading in the Common Stock) on the date of determination, as reported in a source the Board deems reliable.

(ii) Unless otherwise provided by the Board, if there is no closing sales price for the Common Stock on the date of determination, then the Fair Market Value will be the closing selling price on the last preceding date for which such quotation exists.

(iii) In the absence of such markets for the Common Stock, the Fair Market Value will be determined by the Board in good faith and in a manner that complies with Sections 409A and 422 of the Code.

(x) ***"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 Awards 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 Award is variable on the applicable date, then the number of shares of Common Stock issuable upon exercise or settlement of the Award shall be the maximum number of shares that could be received under such Award and (y) if two or more types of Awards are granted to a Participant in tandem with each other such that the exercise of one type of Award 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 Award shall be the largest number of shares that would be counted under either of the Awards.

(y) "***Incentive Stock Option***" means an option granted pursuant to Section 5 of the Plan that is intended to be, is designated in the applicable Award Agreement as and qualifies as, an "incentive stock option" within the meaning of Section 422 of the Code.

(z) "***IPO Date***" means the date of the underwriting agreement between the Company and the underwriter(s) managing the initial public offering of the Common Stock, pursuant to which the Common Stock is priced for the initial public offering.

(aa) "***Non-Employee Director***" means a Director who either (i) is not a current employee or officer of the Company or an Affiliate, does not receive compensation, either directly or indirectly, from the Company or an Affiliate for services rendered as a consultant or in any capacity other than as a Director (except for an amount as to which disclosure would not be required under Item 404(a) of Regulation S-K promulgated pursuant to the Securities Act ("***Regulation S-K***")), does not possess an interest in any other transaction for which disclosure would be required under Item 404(a) of Regulation S-K, and is not engaged in a business relationship for which disclosure would be required pursuant to Item 404(b) of Regulation S-K; or (ii) is otherwise considered a "non-employee director" for purposes of Rule 16b-3.

(bb) "***Nonstatutory Stock Option***" means any Option granted pursuant to Section 5 of the Plan that is not an Incentive Stock Option.

(cc) "***Officer***" means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act.

(dd) "***Option***" means an Incentive Stock Option or a Nonstatutory Stock Option to purchase shares of Common Stock granted pursuant to the Plan.

(ee) "***Option Agreement***" means a written agreement between the Company and an Optionholder evidencing the terms and conditions of an Option grant. Each Option Agreement will be subject to the terms and conditions of the Plan.

(ff) "***Optionholder***" means a person to whom an Option is granted pursuant to the Plan or, if applicable, such other person who is a permissible holder of an outstanding Option.

(gg) "***Other Stock Award***" means an award based in whole or in part by reference to the Common Stock that is granted pursuant to the terms and conditions of Section 6(d).

(hh) "***Other Stock Award Agreement***" means a written agreement between the Company and a holder of an Other Stock Award evidencing the terms and conditions of an Other Stock Award grant. Each Other Stock Award Agreement will be subject to the terms and conditions of the Plan.

(ii) "***Outside Director***" means a Director who either (i) is not a current employee of the Company or an "affiliated corporation" (within the meaning of Treasury Regulations promulgated under Section 162(m) of the Code), is not a former employee of the Company or an "affiliated corporation" who receives compensation for prior services (other than benefits under a tax-qualified retirement plan) during the taxable year, has not been an officer of the Company or an "affiliated corporation," and does not receive remuneration from the Company or an "affiliated corporation," either directly or indirectly, in any capacity other than as a Director, or (ii) is otherwise considered an "outside director" for purposes of Section 162(m) of the Code.

(jj) "***Own,***" "***Owned,***" "***Owner,***" "***Ownership***" means a person or Entity will be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(kk) "***Participant***" means a person to whom an Award is granted pursuant to the Plan or, if applicable, such other person who is a permissible holder of an outstanding Award.

(ll) "***Performance Cash Award***" means an award of cash granted pursuant to the terms and conditions of Section 6(c)(ii).

(mm) "***Performance Criteria***" means the one or more criteria that the Board will select for purposes of establishing the Performance Goals for a Performance Period. The Performance Criteria that will be used to establish such Performance Goals may be based on any one of, or combination of, the following as determined by the Board: (i) earnings (including earnings per share and net earnings); (ii) earnings before interest, taxes and depreciation; (iii) earnings before interest, taxes, depreciation and amortization; (iv) earnings before interest, taxes, depreciation, amortization and legal settlements; (v) earnings before interest, taxes, depreciation, amortization, legal settlements and other income (expense); (vi) earnings before interest, taxes, depreciation, amortization, legal settlements, other income (expense) and stock-based compensation; (vii) earnings before interest, taxes, depreciation, amortization, legal settlements, other income (expense), stock-based compensation and changes in deferred revenue; (viii) earnings before interest, taxes, depreciation, amortization, legal settlements, other income (expense), stock-based compensation, other non-cash expenses and changes in deferred revenue; (ix) total stockholder return; (x) return on equity or average stockholder's equity; (xi) return on assets, investment, or capital employed; (xii) stock price; (xiii) margin (including gross margin); (xiv) income (before or after taxes); (xv) operating income; (xvi) operating income after taxes; (xvii) pre-tax profit; (xviii) operating cash flow; (xix) sales or revenue targets; (xx) increases in revenue or product revenue; (xxi) expenses and cost reduction goals; (xxii) improvement in or attainment of working capital levels; (xxiii) economic value added (or an equivalent metric); (xxiv) market share; (xxv) cash flow; (xxvi) cash flow per share; (xxvii) cash balance; (xxviii) cash burn; (xxix) cash collections; (xxx) share price performance; (xxxi) debt reduction; (xxxii) implementation or completion of projects or processes (including, without

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limitation, clinical trial initiation, new and supplemental indications for existing products, and product supply); (xxxiii) stockholders' equity; (xxxiv) capital expenditures; (xxxv) debt levels; (xxxvi) operating profit or net operating profit; (xxxvii) workforce diversity; (xxxviii) growth of net income or operating income; (xxxix) billings; (xl) bookings; (xli) employee retention; (xlii) initiation of phases of clinical trials and/or studies by specific dates; (xliii) acquisition of new customers, including institutional accounts; (xliv) customer retention and/or repeat order rate; (xlv) number of institutional customer accounts (xlvi) budget

management; (xlvii) improvements in sample and test processing times; (xlviii) regulatory milestones; (xlix) progress of internal research or clinical programs; (l) progress of partnered programs; (li) partner satisfaction; (lii) milestones related to samples received and/or tests run; (liii) expansion of sales in additional geographies or markets; (liv) research progress, including the development of programs; (lv) patient samples processed and billed; (lvi) sample processing operating metrics (including, without limitation, failure rate maximums and reduction of repeat rates); (lvii) strategic partnerships or transactions (including in-licensing and out-licensing of intellectual property); and (lviii) and to the extent that an Award is not intended to constitute "qualified performance-based compensation" under Section 162(m) of the Code, other measures of performance selected by the Board.

(nn) "***Performance Goals***" means, for a Performance Period, the one or more goals established by the Board for the Performance Period based upon the Performance Criteria. Performance Goals may be based on a Company-wide basis, with respect to one or more business units, divisions, Affiliates, or business segments, and in either absolute terms or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Unless specified otherwise by the Board (i) in the Award Agreement at the time the Award is granted or (ii) in such other document setting forth the Performance Goals at the time the Performance Goals are established, the Board will appropriately make adjustments in the method of calculating the attainment of Performance Goals for a Performance Period as follows: (1) to exclude restructuring and/or other nonrecurring charges; (2) to exclude exchange rate effects; (3) to exclude the effects of changes to generally accepted accounting principles; (4) to exclude the effects of any statutory adjustments to corporate tax rates; (5) to exclude the effects of any "extraordinary items" as determined under generally accepted accounting principles; (6) to exclude the dilutive effects of acquisitions or joint ventures; (7) to assume that any business divested by the Company achieved performance objectives at targeted levels during the balance of a Performance Period following such divestiture; (8) to exclude the effect of any change in the outstanding shares of common stock of the Company by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common stockholders other than regular cash dividends; (9) to exclude the effects of stock based compensation and the award of bonuses under the Company's bonus plans; (10) to exclude costs incurred in connection with potential acquisitions or divestitures that are required to be expensed under generally accepted accounting principles; (11) to exclude the goodwill and intangible asset impairment charges that are required to be recorded under generally accepted accounting principles; (12) to exclude the effect of any other unusual, non-recurring gain or loss or other extraordinary item; and (13) to exclude the effects of the timing of acceptance for review and/or approval of submissions to the U.S. Food and Drug Administration or any other regulatory body. In addition, the Board retains the discretion to reduce or eliminate the compensation or economic benefit due upon attainment of Performance Goals (subject to the limitations set forth in Treas. Reg. Section 1.162-27(e)(2)(iii) in the case of Awards intended to constitute "qualified performance-based compensation " under Section 162(m) of the Code) and to define the manner of calculating the Performance Criteria it selects to use for such Performance Period. Partial achievement of the specified criteria may result in the payment or vesting corresponding to the degree of achievement as specified in the Stock Award Agreement or the written terms of a Performance Cash Award.

(oo) "***Performance Period***" means the period of time selected by the Board over which the attainment of one or more Performance Goals will be measured for the purpose of determining a

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Participant's right to or under and the payment of a Stock Award or a Performance Cash Award. Performance Periods may be of varying and overlapping duration, at the sole discretion of the Board.

(pp) "***Performance Stock Award***" means a Stock Award granted under the terms and conditions of Section 6(c)(i).

(qq) "***Plan***" means this Amended and Restated Gemphire Therapeutics Inc. 2015 Equity Incentive Plan.

(rr) "***Restricted Stock Award***" means an award of shares of Common Stock that is granted pursuant to the terms and conditions of Section 6(a).

(ss) "***Restricted Stock Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Award evidencing the terms and conditions of a Restricted Stock Award grant. Each Restricted Stock Award Agreement will be subject to the terms and conditions of the Plan.

(tt) "***Restricted Stock Unit Award***" means a right to receive shares of Common Stock (or cash in an amount equal to the value of shares of Common Stock) that is granted pursuant to the terms and conditions of Section 6(b).

(uu) "***Restricted Stock Unit Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Unit Award evidencing the terms and conditions of a Restricted Stock Unit Award grant. Each Restricted Stock Unit Award Agreement will be subject to the terms and conditions of the Plan.

(vv) "***Rule 16b-3***" means Rule 16b-3 promulgated under the Exchange Act or any successor to Rule 16b-3, as in effect from time to time.

(ww) "***Securities Act***" means the Securities Act of 1933, as amended.

(xx) "***Stock Appreciation Right***" or "***SAR***" means a right to receive the appreciation in value of shares of Common Stock that is granted pursuant to the terms and conditions of Section 5.

(yy) "***Stock Appreciation Right Agreement***" means a written agreement between the Company and a holder of a Stock Appreciation Right evidencing the terms and conditions of a Stock Appreciation Right grant. Each Stock Appreciation Right Agreement will be subject to the terms and conditions of the Plan.

(zz) "***Stock Award***" means any right to receive or acquire Common Stock granted under the Plan, including an Incentive Stock Option, a Nonstatutory Stock Option, a Restricted Stock Award, a Restricted Stock Unit Award, a Stock Appreciation Right, a Performance Stock Award or any Other Stock Award.

(aaa) "***Stock Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of a Stock Award grant. Each Stock Award Agreement will be subject to the terms and conditions of the Plan.

(bbb) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than 50% of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of

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such corporation will have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contributions) of more than 50%.

(ccc) "***Ten Percent Stockholder***" means a person who Owns (or is deemed to Own pursuant to Section 424(d) of the Code) stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or any Affiliate.

GEMPHIRE THERAPEUTICS INC.
STOCK OPTION GRANT NOTICE
(AMENDED AND RESTATED 2015 EQUITY INCENTIVE PLAN)

Gemphire Therapeutics Inc. (the "***Company***"), pursuant to its Amended and Restated 2015 Equity Incentive Plan (the "***Plan***"), hereby grants to Optionholder an option to purchase the number of shares of the Company's Common Stock set forth below. This option is subject to all of the terms and conditions as set forth in this notice, in the Option Agreement, the Plan and the Notice of Exercise, all of which are attached hereto and incorporated herein in their entirety. Capitalized terms not explicitly defined herein but defined in the Plan or the Option Agreement will have the same definitions as in the Plan or the Option Agreement. If there is any conflict between the terms in this notice and the Plan, the terms of the Plan will control.

Optionholder:
Date of Grant:
Vesting Commencement Date:
Number of Shares Subject to Option:
Exercise Price (Per Share):
Total Exercise Price:
Expiration Date:

Type of Grant:	o Incentive Stock Option(1)	o Nonstatutory Stock Option
Exercise Schedule:	x Same as Vesting Schedule	o Early Exercise Permitted

Vesting Schedule: **[**One-fourth **(**1/4th) of the shares vest one year after the Vesting Commencement Date; the balance of the shares vest in a series of thirty-six (36) successive equal monthly installments measured from the first anniversary of the Vesting Commencement Date, subject to Optionholder's Continuous Service as of each such date.]

Payment: By one or a combination of the following items (described in the Option Agreement):

x By cash, check, bank draft or money order payable to the Company
x Pursuant to a Regulation T Program (also known as a "broker-assisted exercise", "same day sale", or "sell to cover") if the shares are publicly traded
x By delivery of already-owned shares if the shares are publicly traded
x If and only to the extent this option is a Nonstatutory Stock Option, and subject to the Company's consent at the time of exercise, by a "net exercise" arrangement

(1) If this is an Incentive Stock Option, it (plus other outstanding Incentive Stock Options) cannot be first *exercisable* for more than $100,000 in value of stock (measured by exercise price) in any calendar year. Any excess over $100,000 is a Nonstatutory Stock Option.

Additional Terms/Acknowledgements: Optionholder acknowledges receipt of, and understands and agrees to, this Stock Option Grant Notice, the Option Agreement and the Plan. Optionholder acknowledges and agrees that this Stock Option Grant Notice and the Option Agreement may not be modified, amended or revised except as provided in the Plan. Optionholder further acknowledges that as of the Date of Grant, this Stock Option Grant Notice, the Option Agreement, and the Plan set forth the entire understanding between Optionholder and the Company regarding this option award and supersede

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all prior oral and written agreements, promises and/or representations on that subject with the exception of (i) options previously granted and delivered to Optionholder, (ii) any compensation recovery policy that is adopted by the Company or is otherwise required by applicable law and (iii) any written employment or severance arrangement that would provide for vesting acceleration of this option upon the terms and conditions set forth therein.

By accepting this option, Optionholder consents to receive such documents by electronic delivery and to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

GEMPHIRE THERAPEUTICS INC.	**OPTIONHOLDER:**
By: _____	_____
Signature	Signature
Title: _____	Date: _____
Date: _____	

ATTACHMENTS: Option Agreement, Amended and Restated 2015 Equity Incentive Plan and Notice of Exercise.

ATTACHMENT I

OPTION AGREEMENT

GEMPHIRE THERAPEUTICS INC.
AMENDED AND RESTATED 2015 EQUITY INCENTIVE PLAN
OPTION AGREEMENT
(INCENTIVE STOCK OPTION OR NONSTATUTORY STOCK OPTION)

Pursuant to your Stock Option Grant Notice ("***Grant Notice***") and this Option Agreement, Gemphire Therapeutics Inc. (the "***Company***") has granted you an option under its Amended and Restated 2015 Equity Incentive Plan (the "***Plan***") to purchase the number of shares of the Company's Common Stock indicated in your Grant Notice at the exercise price indicated in your Grant Notice. The option is granted to you effective as of the date of grant set forth in the Grant Notice (the "***Date of Grant***"). If there is any conflict between the terms in this Option Agreement and the Plan, the terms of the Plan will control. Capitalized terms not explicitly defined in this Option Agreement or in the Grant Notice but defined in the Plan will have the same definitions as in the Plan.

The details of your option, in addition to those set forth in the Grant Notice and the Plan, are as follows:

1. VESTING. Subject to the provisions contained herein, your option will vest as provided in your Grant Notice. Vesting will cease upon the termination of your Continuous Service.

2. NUMBER OF SHARESAND EXERCISE PRICE. The number of shares of Common Stock subject to your option and your exercise price per share in your Grant Notice will be adjusted for Capitalization Adjustments.

3. EXERCISE RESTRICTION FOR NON-EXEMPT EMPLOYEES. If you are an Employee eligible for overtime compensation under the Fair Labor Standards Act of 1938, as amended (that is, a "***Non-Exempt Employee***"), and except as otherwise provided in the Plan, you may not exercise your option until you have completed at least 6 months of Continuous Service measured from the Date of Grant, even if you have already been an employee for more than 6 months. Consistent with the provisions of the Worker Economic Opportunity Act, you may exercise your option as to any vested portion prior to such 6 month anniversary in the case of (i) your death or disability, (ii) a Corporate Transaction in which your option is not assumed, continued or substituted, (iii) a Change in Control or (iv) your termination of Continuous Service on your "retirement" (as defined in the Company's benefit plans).

4. EXERCISE PRIOR TO VESTING ("EARLY EXERCISE"). If permitted in your Grant Notice (*i.e.*, the "Exercise Schedule" indicates "Early Exercise Permitted") and subject to the provisions of your option, you may elect at any time that is both (i) during the period of your Continuous Service and (ii) during the term of your option, to exercise all or part of your option, including the unvested portion of your option; *provided, however,* that:

a. a partial exercise of your option will be deemed to cover first vested shares of Common Stock and then the earliest vesting installment of unvested shares of Common Stock;

b. any shares of Common Stock so purchased from installments that have not vested as of the date of exercise will be subject to the purchase option in favor of the Company as described in the Company's form of Early Exercise Stock Purchase Agreement;

c. you will enter into the Company's form of Early Exercise Stock Purchase Agreement under which the shares acquired upon early exercise of your option will cease being subject to repurchase by the Company's as and when such shares become vested in accordance with the vesting schedule set forth in your Grant Notice; and

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d. if your option is an Incentive Stock Option, then, to the extent that the aggregate Fair Market Value (determined at the Date of Grant) of the shares of Common Stock with respect to which your option plus all other Incentive Stock Options you hold are exercisable for the first time by you during any calendar year (under all plans of the Company and its Affiliates) exceeds $100,000, your option(s) or portions thereof that exceed such limit (according to the order in which they were granted) will be treated as Nonstatutory Stock Options.

5. METHOD OF PAYMENT. You must pay the full amount of the exercise price for the shares you wish to exercise. You may pay the exercise price in cash or by check, bank draft or money order payable to the Company or in any other manner ***permitted by your Grant Notice,*** which may include one or more of the following:

a. Provided that at the time of exercise the Common Stock is publicly traded, pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of Common Stock, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds. This manner of payment is also known as a "broker-assisted exercise", "same day sale", or "sell to cover".

b. By delivery to the Company (either by actual delivery or attestation) of already-owned shares of Common Stock that are owned free and clear of any liens, claims, encumbrances or security interests, and that are valued at Fair Market Value on the date of exercise. "Delivery" for these purposes, in the sole discretion of the Company at the time you exercise your option, will include delivery to the Company of your attestation of ownership of such shares of Common Stock in a form approved by the Company. You may not exercise your option by delivery to the Company of Common Stock if doing so would violate the provisions of any law, regulation or agreement restricting the redemption of the Company's stock.

c. If this option is a Nonstatutory Stock Option, subject to the consent of the Company at the time of exercise, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issued upon exercise of your option by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price. You must pay any remaining balance of the aggregate exercise price not satisfied by the "net exercise" in cash or other permitted form of payment. Shares of Common Stock will no longer be able to be acquired under your option if those shares (i) are used to pay the exercise price pursuant to the "net exercise," (ii) are delivered to you as a result of such exercise, and (iii) are withheld to satisfy your tax withholding obligations.

6. WHOLE SHARES. You may exercise your option only for whole shares of Common Stock.

7. SECURITIES LAW COMPLIANCE. In no event may you exercise your option unless the shares of Common Stock issuable upon exercise are then registered under the Securities Act or, if not registered, the Company has determined that your exercise and the issuance of the shares would be exempt from the registration requirements of the Securities Act. The exercise of your option also must comply with all other applicable laws and regulations governing your option, and you may not exercise your option if the Company determines that such exercise would not be in material compliance with such laws and regulations.

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8. TERM. You may not exercise your option before the Date of Grant or after the expiration of the option's term. The term of your option expires, subject to the provisions of Section 5(h) of the Plan, upon the earliest of the following:

a. immediately upon the termination of your Continuous Service for Cause;

b. 3 months after the termination of your Continuous Service for any reason other than Cause, your Disability or your death (except as otherwise provided in Section 8(d) below); *provided, however,* that if during any part of such 3 month period your option is not exercisable solely because of the condition set forth in the section above relating to "Securities Law Compliance," your option will not expire until the earlier of the Expiration Date or until it has been exercisable for an aggregate period of 3 months after the termination of your Continuous Service; *provided further,* if during any part of such 3 month period, the sale of any Common Stock received upon exercise of your option would violate the Company's insider trading policy, then your option will not expire until the earlier of the Expiration Date or until it has been exercisable for an aggregate period of 3 months after the termination of your Continuous Service during which the sale of the Common Stock received upon exercise of your option would not be in violation of the Company's insider trading policy. Notwithstanding the foregoing, if (i) you are a Non-Exempt Employee, (ii) your Continuous Service terminates within 6 months after the Date of Grant, and (iii) you have vested in a portion of your option at the time of your termination of Continuous Service, your option will not expire until the earlier of (x) the later of (A) the date that is 7 months after the Date of Grant, and (B) the date that is 3 months after the termination of your Continuous Service, and (y) the Expiration Date;

c. 12 months after the termination of your Continuous Service due to your Disability (except as otherwise provided in Section 8(d)) below;

d. 18 months after your death if you die either (A) during your Continuous Service, (ii) during the 3 month period after your Continuous Service terminates other than on account of Cause or your Disability, or (iii) during the 12 month period following termination of your Continuous Service on account of your Disability;

e. the Expiration Date indicated in your Grant Notice; or

f. the day before the 10th anniversary of the Date of Grant.

If your option is an Incentive Stock Option, note that to obtain the federal income tax advantages associated with an Incentive Stock Option, you must exercise the option during the "ISO Exercise Period." For this purpose, the "ISO Exercise Period" begins on the Date of Grant and ends (i) 3 months after termination of your employment with the Company or an Affiliate other than on account of Cause or your death or Disability (unless you die within that 3 month period), (ii) 12 months after termination of your employment with the Company or an Affiliate on account of your Disability (unless you die within that 12 month period), or (iii) 12 months after your death if your employment with the Company or an Affiliate terminates on account of you death or if your death occurs during either the 3 month or the 12 month period referred to in the foregoing clauses (i) and (ii) of this sentence, as applicable. The Company has provided for extended exercisability of your option under certain circumstances for your benefit but, if your option is an Incentive Stock Option, you will not be entitled to the favorable tax treatment associated with an Incentive Stock Option if you exercise your option after the ISO Exercise Period. If your option is an Incentive Stock Option, moreover, you will also not be entitled to the favorable tax treatment associated with an Incentive Stock Option unless you remain in Continuous Service as an employee of the Company or an Affiliate for the entire ISO Exercise Period (except for the

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post-employment termination portion of the ISO Exercise Period set forth in the second preceding sentence of this paragraph.

9. EXERCISE.

a. You may exercise the vested portion of your option (and the unvested portion of your option if your Grant Notice so permits) during its term by (i) delivering a Notice of Exercise (in a form designated by the Company) or completing such other documents and/or procedures designated by the Company for exercise and (ii) paying the exercise price and any applicable withholding taxes to the Company's Secretary, stock plan administrator, or such other person as the Company may designate, together with such additional documents as the Company may then require.

b. By exercising your option you agree that, as a condition to any exercise of your option, the Company may require you to enter into an arrangement providing for the payment by you to the Company of any tax withholding obligation of the Company arising by reason of (i) the exercise of your option, (ii) the lapse of any substantial risk of forfeiture to which the shares of Common Stock are subject at the time of exercise, or (iii) the disposition of shares of Common Stock acquired upon such exercise.

c. If your option is an Incentive Stock Option, by exercising your option you agree that you will notify the Company in writing within 15 days after the date of any disposition of any of the shares of the Common Stock issued upon exercise of your option that occurs within 2 years after the Date of Grant or within 1 year after such shares of Common Stock are transferred upon exercise of your option.

d. By accepting your option you agree that you will not sell, dispose of, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale, any shares of Common Stock or other securities of the Company held by you, for a period of 180 days following the effective date of a registration statement of the Company filed under the Securities Act (the "***Lock-Up Period***"); *provided, however*, that nothing contained in this section will prevent the exercise of a repurchase option, if any, in favor of the Company during the Lock-Up Period. You further agree to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriters that are consistent with the foregoing or that are necessary to give further effect thereto. In order to enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to your shares of Common Stock until the end of such period. You also agree that any transferee of any shares of Common Stock (or other

securities) of the Company held by you will be bound by this Section 9(d). The underwriters of the Company's stock are intended third party beneficiaries of this Section 9(d) and will have the right, power and authority to enforce the provisions hereof as though they were a party hereto.

10. TRANSFERABILITY. Except as otherwise provided in this Section 10, your option is not transferable, except by will or by the laws of descent and distribution, and is exercisable during your life only by you.

a. Certain Trusts. Upon receiving written permission from the Board or its duly authorized designee, you may transfer your option to a trust if you are considered to be the sole beneficial owner of the option (determined under Section 671 of the Code and applicable state law) while the option is held in the trust, subject to you and the trustee entering into transfer and other agreements required by the Company.

b. Beneficiary Designation. Upon receiving written permission from the Board or its duly authorized designee, you may, by delivering written notice to the Company, in a form approved

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by the Company, designate a third party who, on your death, will thereafter be entitled to exercise this option and receive the Common Stock or other consideration resulting from such exercise, but only to the extent that you were entitled to exercise the option as of the date of your death. In the absence of such a designation, your executor or administrator of your estate will be entitled to exercise this option and receive, on behalf of your estate, the Common Stock or other consideration resulting from such exercise, but only to the extent that you were entitled to exercise the option as of the date of your death.

11. OPTION NOT A SERVICE CONTRACT. Your option is not an employment or service contract, and nothing in your option will be deemed to create in any way whatsoever any obligation on your part to continue in the employ of the Company or an Affiliate, or of the Company or an Affiliate to continue your employment. In addition, nothing in your option will obligate the Company or an Affiliate, their respective stockholders, boards of directors, officers or employees to continue any relationship that you might have as a Director or Consultant for the Company or an Affiliate.

12. WITHHOLDING OBLIGATIONS.

a. At the time you exercise your option, in whole or in part, and at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you by the Company or an Affiliate, and otherwise agree to make adequate provision for (including by means of a "same day sale" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company if the shares purchased on exercise of the option are publicly traded), any sums required to satisfy the federal, state, local and foreign tax withholding obligations of the Company or an Affiliate, if any, which arise in connection with the exercise of your option or the vesting or disposition of the shares acquired upon exercise of the option.

b. If this option is a Nonstatutory Stock Option, then upon your request and subject to approval by the Company, and compliance with any applicable legal conditions or restrictions, the Company may withhold from fully vested shares of Common Stock otherwise issuable to you upon the exercise of your option a number of whole shares of Common Stock having a Fair Market Value, determined by the Company as of the date of exercise, not in excess of the minimum amount of tax required to be withheld by law (or such lower amount as may be necessary to avoid classification of your option as a liability for financial accounting purposes). If the date of determination of any tax withholding obligation is deferred to a date later than the date of exercise of your option, share withholding pursuant to the preceding sentence shall not be permitted unless you make a proper and timely election under Section 83(b) of the Code, covering the aggregate number of shares of Common Stock acquired upon such exercise with respect to which such determination is otherwise deferred, to accelerate the determination of such tax withholding obligation to the date of exercise of your option. Notwithstanding the filing of such election, shares of Common Stock shall be withheld solely from fully vested shares of Common Stock determined as of the date of exercise of your option that are otherwise issuable to you upon such exercise. Any adverse consequences to you arising in connection with such share withholding procedure shall be your sole responsibility.

c. You may not exercise your option unless the tax withholding obligations of the Company and/or any Affiliate are satisfied, or provisions for the satisfaction of such obligations acceptable to the Company are in place. Accordingly, you may not be able to exercise your option when desired even though your option is vested, and the Company will have no obligation to issue a certificate for such shares of Common Stock or release such shares of Common Stock from any escrow provided for herein, if applicable, unless such obligations are satisfied.

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13. TAX CONSEQUENCES. You hereby agree that the Company does not have a duty to design or administer the Plan or its other compensation programs in a manner that minimizes your tax liabilities. You will not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates related to tax liabilities arising from your option or your other compensation. In particular, you acknowledge that this option is exempt from Section 409A of the Code only if the exercise price per share specified in the Grant Notice is at least equal to the "fair market value" per share of the Common Stock on the Date of Grant, there is no impermissible deferral of compensation associated with the option, and certain other requirements set forth in the regulations under Section 409A of the code are satisfied.

14. NOTICES. Any notices provided for in your option or the Plan will be given in writing (including electronically) and will be deemed effectively given upon receipt or, in the case of notices delivered by mail by the Company to you, 5 days after deposit in the United States mail, postage prepaid, addressed to you at the last address you provided to the Company. The Company may, in its sole discretion, decide to deliver any documents related to participation in the Plan and this option by electronic means or to request your consent to participate in the Plan by electronic means. By accepting this option, you consent to receive such documents by electronic delivery and to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

15. GOVERNING PLAN DOCUMENT. Your option is subject to all the provisions of the Plan, the provisions of which are hereby made a part of your option, and is further subject to all interpretations, amendments, rules and regulations, which may from time to time be promulgated and adopted pursuant to the Plan. If there is any conflict between the provisions of your option and those of the Plan, the provisions of the Plan will control. In addition, your option (and any compensation paid or shares issued under your option) is subject to recoupment in accordance with The Dodd—Frank Wall Street Reform and Consumer Protection Act and any implementing regulations thereunder, any clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable law.

16. OTHER DOCUMENTS. You hereby acknowledge receipt of and the right to receive a document providing the information required by Rule 428(b)(1) promulgated under the Securities Act, which includes the Plan prospectus. In addition, you acknowledge receipt of the Company's policy permitting certain individuals to sell shares only during certain "window" periods and the Company's insider trading policy, in effect from time to time.

17. EFFECT ON OTHER EMPLOYEE BENEFIT PLANS. The value of this option will not be included as compensation, earnings, salaries, or other similar terms used when calculating your benefits under any employee benefit plan sponsored by the Company or any Affiliate, except as such plan otherwise expressly provides. The Company expressly reserves its rights to amend, modify, or terminate any of the Company's or any Affiliate's employee benefit plans.

18. VOTING RIGHTS. You will not have voting or any other rights as a stockholder of the Company with respect to the shares to be issued pursuant to this option until such shares are issued to you. Upon such issuance, you will obtain full voting and other rights as a stockholder of the Company with respect to such shares. Nothing contained in this option, and no action taken pursuant to its provisions, will create or be construed to create a trust of any kind or a fiduciary relationship between you and the Company or any other person.

19. SEVERABILITY. If all or any part of this Option Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity will not invalidate any portion of this Option Agreement or the Plan not declared to be unlawful or invalid. Any

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Section of this Option Agreement (or part of such a Section) so declared to be unlawful or invalid shall, if possible, be construed in a manner which will give effect to the terms of such Section or part of a Section to the fullest extent possible while remaining lawful and valid.

20. MISCELLANEOUS.

a. The rights and obligations of the Company under your option will be transferable to any one or more persons or entities, and all covenants and agreements hereunder will inure to the benefit of, and be enforceable by, the Company's successors and assigns.

b. You agree upon request to execute any further documents or instruments necessary or desirable in the sole determination of the Company to carry out the purposes or intent of your option.

c. You acknowledge and agree that you have reviewed your option in its entirety, have had an opportunity to obtain the advice of counsel prior to executing and accepting your option, and fully understand all provisions of your option.

d. This Option Agreement will be subject to all applicable laws, rules, and regulations, and to such approvals by any governmental agencies or national securities exchanges as may be required.

e. All obligations of the Company under the Plan and this Option Agreement will be binding on any successor to the Company, whether the existence of such successor is the result of a direct or indirect purchase, merger, consolidation, or otherwise, of all or substantially all of the business and/or assets of the Company.

ATTACHMENT II

AMENDED AND RESTATED 2015 EQUITY INCENTIVE PLAN

ATTACHMENT III

NOTICE OF EXERCISE

NOTICE OF EXERCISE

Gemphire Therapeutics Inc.
Attention: Stock Plan Administrator
[INSERT NEW ADDRESS]

Date of Exercise: _____

This constitutes notice to Gemphire Therapeutics Inc. (the "***Company***") under my stock option that I elect to purchase the below number of shares of Common Stock of the Company (the " ***Shares*** ") for the price set forth below.

Type of option (check one):		Incentive o	Nonstatutory o
Stock option dated:			
Number of Shares as to which option is exercised:			
Certificates to be issued in name of:			
Total exercise price:		$	
Cash payment delivered herewith:		$	
Value of	Shares delivered herewith:	$	$
Value of	Shares pursuant to net exercise(2):	$	

Regulation T Program (cashless exercise): $

By this exercise, I agree (i) to provide such additional documents as you may require pursuant to the terms of the Amended and Restated 2015 Equity Incentive Plan, (ii) to provide for the payment by me to the Company (in the manner designated by the Company) of tax withholding obligations, if any, relating to the exercise of this option or the vesting or disposition of the Shares acquired by me upon exercise of this option, and (iii) if this exercise relates to an incentive stock option, to notify the Company in writing within 15 days after the date of any disposition of any of the Shares issued upon exercise of this option that occurs within 2 years after the date of grant of this option or within 1 year after such Shares are issued upon exercise of this option.

Very truly yours,

_____

Signature

_____

Print Name

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(2) The option must be a Nonstatutory Stock Option, and Gemphire Therapeutics Inc. must have established net exercise procedures at the time of exercise, in order to use this payment method.

GEMPHIRE THERAPEUTICS INC.
2016 EMPLOYEE STOCK PURCHASE PLAN
ADOPTED BY THE BOARD OF DIRECTORS: APRIL 22, 2016
APPROVED BY THE STOCKHOLDERS: APRIL 26, 2016

I. GENERAL; PURPOSE.

A. The Plan provides a means by which Eligible Employees of the Company and certain designated Related Corporations may be given an opportunity to purchase shares of Common Stock. The Plan permits the Company to grant a series of Purchase Rights to Eligible Employees under an Employee Stock Purchase Plan.

B. The Company, by means of the Plan, seeks to retain the services of such Employees, to secure and retain the services of new Employees and to provide incentives for such persons to exert maximum efforts for the success of the Company and its Related Corporations.

II. ADMINISTRATION.

A. The Board will administer the Plan unless and until the Board delegates administration of the Plan to a Committee or Committees, as provided in Section 2(c).

B. The Board will have the power, subject to, and within the limitations of, the express provisions of the Plan:

1. To determine how and when Purchase Rights will be granted and the provisions of each Offering (which need not be identical).

2. To designate from time to time which Related Corporations of the Company will be eligible to participate in the Plan.

3. To construe and interpret the Plan and Purchase Rights, and to establish, amend and revoke rules and regulations for its administration. The Board, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan, in a manner and to the extent it deems necessary or expedient to make the Plan fully effective.

4. To settle all controversies regarding the Plan and Purchase Rights granted under the Plan.

5. To suspend or terminate the Plan at any time as provided in Section 12.

6. To amend the Plan at any time as provided in Section 12.

7. Generally, to exercise such powers and to perform such acts as it deems necessary or expedient to promote the best interests of the Company and its Related Corporations and to carry out the intent that the Plan be treated as an Employee Stock Purchase Plan.

8. To adopt such procedures and sub-plans as are necessary or appropriate to permit participation in the Plan by Employees who are foreign nationals or employed outside the United States.

C. The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration is delegated to a Committee, the Committee will have, in connection with

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the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to a subcommittee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board will thereafter be to the Committee or subcommittee), subject, however, to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board. The Board may retain the authority to concurrently administer the Plan with the Committee and may, at any time, revest in the Board some or all of the powers previously delegated. Whether or not the Board has delegated administration of the Plan to a Committee, the Board will have the final power to determine all questions of policy and expediency that may arise in the administration of the Plan.

D. All determinations, interpretations and constructions made by the Board in good faith will not be subject to review by any person and will be final, binding and conclusive on all persons.

III. SHARES OF COMMON STOCK SUBJECT TO THE PLAN.

A. Subject to the provisions of Section 11(a) relating to Capitalization Adjustments, the maximum number of shares of Common Stock that may be issued under the Plan will not exceed 150,000 shares of Common Stock, plus the number of shares of Common Stock that are automatically added on January 1st of each year for a period of up to ten years, commencing on January 1, 2017 and ending on (and including) January 1, 2026, in an amount equal to the lesser of (i) 1.0% of the total number of shares of Capital Stock outstanding on December 31st of the preceding calendar year, and (ii) 75,000 shares of Common Stock. Notwithstanding the foregoing, the Board may act prior to the first day of any calendar year to provide that there will be no January 1st increase in the share reserve for such calendar year or that the increase in the share reserve for such calendar year will be a lesser number of shares of Common Stock than would otherwise occur pursuant to the preceding sentence.

B. If any Purchase Right granted under the Plan terminates without having been exercised in full, the shares of Common Stock not purchased under such Purchase Right will again become available for issuance under the Plan.

C. The stock purchasable under the Plan will be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market.

IV. GRANT OF PURCHASE RIGHTS; OFFERING.

A. The Board may from time to time grant or provide for the grant of Purchase Rights to Eligible Employees under an Offering (consisting of one or more Purchase Periods) on an Offering Date or Offering Dates selected by the Board. Each Offering will be in such form and will contain such terms and conditions as the Board will deem appropriate, and will comply with the requirement of Section 423(b)(5) of the Code that all Employees granted Purchase Rights will have the same rights and privileges (subject to the exceptions set forth in such provision). The terms and conditions of an Offering shall be incorporated by reference into the Plan and treated as part of the Plan. The provisions of separate Offerings need not be identical, but each Offering will include (through incorporation of the provisions of this Plan by reference in the document comprising the Offering or otherwise) the period during which the Offering will be effective, which period will not exceed 27 months beginning with the Offering Date, and the substance of the provisions contained in Sections 5 through 8, inclusive.

B. If a Participant has more than one Purchase Right outstanding under the Plan, unless he or she otherwise indicates in forms delivered to the Company: (i) each form will apply to all of his or her Purchase Rights under the Plan, and (ii) a Purchase Right with a lower exercise price (or an earlier-granted Purchase Right, if different Purchase Rights have identical exercise prices) will be exercised to

the fullest possible extent before a Purchase Right with a higher exercise price (or a later-granted Purchase Right if different Purchase Rights have identical exercise prices) will be exercised.

C. The Board will have the discretion to structure an Offering so that if the Fair Market Value of a share of Common Stock on the first Trading Day of a new Purchase Period within that Offering is less than or equal to the Fair Market Value of a share of Common Stock on the Offering Date for that Offering, then (i) that Offering will terminate immediately as of that first Trading Day, and (ii) the Participants in such terminated Offering will be automatically enrolled in a new Offering beginning on the first Trading Day of such new Purchase Period.

V. ELIGIBILITY.

A. Purchase Rights may be granted only to Employees of the Company or, as the Board may designate in accordance with Section 2(b), to Employees of a Related Corporation. Except as provided in Section 5(b), an Employee will not be eligible to be granted Purchase Rights unless, on the Offering Date, the Employee has been in the employ of the Company or the Related Corporation, as the case may be, for such continuous period preceding such Offering Date as the Board may require, but in no event will the required period of continuous employment be equal to or greater than two years. In addition, the Board may provide that no Employee will be eligible to be granted Purchase Rights under the Plan unless, on the Offering Date, such Employee's customary employment with the Company or the Related Corporation is more than 20 hours per week and more than five months per calendar year or such other criteria as the Board may determine consistent with Section 423 of the Code.

B. The Board may provide that each person who, during the course of an Offering, first becomes an Eligible Employee will, on a date or dates specified in the Offering which coincides with the day on which such person becomes an Eligible Employee or which occurs thereafter, receive a Purchase Right under that Offering, which Purchase Right will thereafter be deemed to be a part of that Offering. Such Purchase Right will have the same characteristics as any Purchase Rights originally granted under that Offering, as described herein, except that:

1. the date on which such Purchase Right is granted will be the "Offering Date" of such Purchase Right for all purposes, including determination of the exercise price of such Purchase Right;

2. the period of the Offering with respect to such Purchase Right will begin on its Offering Date and end coincident with the end of such Offering; and

3. the Board may provide that if such person first becomes an Eligible Employee within a specified period of time before the end of the Offering, he or she will not receive any Purchase Right under that Offering.

C. No Employee will be eligible for the grant of any Purchase Rights if, immediately after any such Purchase Rights are granted, such Employee owns stock possessing five percent or more of the total combined voting power or value of all classes of stock of the Company or of any Related Corporation. For purposes of this Section 5(c), the rules of Section 424(d) of the Code will apply in determining the stock ownership of any Employee, and stock which such Employee may purchase under all outstanding Purchase Rights and options will be treated as stock owned by such Employee.

D. As specified by Section 423(b)(8) of the Code, an Eligible Employee may be granted Purchase Rights only if such Purchase Rights, together with any other rights granted under all Employee Stock Purchase Plans of the Company and any Related Corporations, do not permit such Eligible

Employee's rights to purchase stock of the Company or any Related Corporation to accrue at a rate which exceeds $25,000 of Fair Market Value of such stock (determined at the time such rights are granted, and which, with respect to the Plan, will be determined as of their respective Offering Dates) for each calendar year in which such rights are outstanding at any time.

E. Officers of the Company and any designated Related Corporation, if they are otherwise Eligible Employees, will be eligible to participate in Offerings under the Plan. Notwithstanding the foregoing, the Board may provide in an Offering that Employees who are highly compensated Employees within the meaning of Section 423(b)(4)(D) of the Code will not be eligible to participate.

VI. PURCHASE RIGHTS; PURCHASE PRICE.

A. On each Offering Date, each Eligible Employee, pursuant to an Offering made under the Plan, will be granted a Purchase Right to purchase up to that number of shares of Common Stock purchasable either with a percentage or with a maximum dollar amount, as designated by the Board, but in either case not exceeding 15% of such Employee's earnings (as defined by the Board in each Offering) during the period that begins on the Offering Date (or such later date as the Board determines for a particular Offering) and ends on the date stated in the Offering, which date will be no later than the end of the Offering.

B. The Board will establish one or more Purchase Dates during an Offering on which Purchase Rights granted for that Offering will be exercised and shares of Common Stock will be purchased in accordance with such Offering.

C. In connection with each Offering made under the Plan, subject to the rules and limitations in the Plan and Section 423 of the Code, the Board may specify (i) a maximum number of shares of Common Stock that may be purchased by any Participant on any Purchase Date during such Offering, (ii) a maximum aggregate number of shares of Common Stock that may be purchased by all Participants pursuant to such Offering and/or (iii) a maximum aggregate number of shares of Common Stock that may be purchased by all Participants on any Purchase Date under the Offering. If the aggregate purchase of shares of Common Stock issuable upon exercise of Purchase Rights granted under the Offering would exceed any such maximum aggregate number, then, in the absence of any Board action otherwise, a pro rata (based on each Participant's accumulated Contributions) allocation of the shares of Common Stock available will be made in as nearly a uniform manner as will be practicable and equitable.

D. The purchase price of shares of Common Stock acquired pursuant to Purchase Rights will be not less than the lesser of:

1. an amount equal to 85% of the Fair Market Value of the shares of Common Stock on the Offering Date; and

2. an amount equal to 85% of the Fair Market Value of the shares of Common Stock on the applicable Purchase Date.

VII. PARTICIPATION; WITHDRAWAL; TERMINATION.

A. An Eligible Employee may elect to authorize payroll deductions as the means of making Contributions by completing and delivering to the Company, within the time specified in the Offering, an enrollment form provided by the Company. The enrollment form will specify the amount of Contributions not to exceed the maximum amount specified by the Board consistent with the limitations of Section 423 of the Code. Each Participant's Contributions will be credited to a bookkeeping account for such

Participant under the Plan and will be deposited with the general funds of the Company except where applicable law requires that Contributions be deposited with a third party. If permitted in the Offering, a Participant may begin such Contributions with the first payroll occurring on or after the Offering Date (or, in the case of a payroll date that occurs after the end of the prior Offering but before the Offering Date of the next new Offering, Contributions from such payroll will be included in the new Offering). If permitted in the Offering, a Participant may thereafter reduce (including to zero) or increase his or her Contributions. If specifically provided in the Offering, in addition to making Contributions by payroll deductions, a Participant may make Contributions through the payment by cash or check prior to a Purchase Date.

B. During an Offering, a Participant may cease making Contributions and withdraw from the Offering by delivering to the Company a withdrawal form provided by the Company. The Company may impose a deadline before a Purchase Date for withdrawing. Upon such withdrawal, such Participant's Purchase Right in that Offering will immediately terminate and the Company will distribute to such Participant all of his or her accumulated but unused Contributions. A Participant's withdrawal from that Offering will have no effect upon his or her eligibility to participate in any other Offerings under the Plan, but such Participant will be required to deliver a new enrollment form to participate in subsequent Offerings.

C. Purchase Rights granted pursuant to any Offering under the Plan will terminate immediately if the Participant either (i) is no longer an Employee for any reason or for no reason (subject to any post-employment participation period provided in the Plan or in an Offering or as required by law) or (ii) is otherwise no longer eligible to participate. The Company will distribute to such individual all of his or her accumulated but unused Contributions.

D. During a Participant's lifetime, Purchase Rights will be exercisable only by such Participant. Purchase Rights are not transferable by a Participant, except by will, by the laws of descent and distribution, or, if permitted by the Company, by a beneficiary designation as described in Section 10.

E. Unless otherwise specified in the Offering, the Company will have no obligation to pay interest on Contributions.

VIII. EXERCISE OF PURCHASE RIGHTS.

A. On each Purchase Date, each Participant's accumulated Contributions will be applied to the purchase of shares of Common Stock, up to the maximum number of shares of Common Stock permitted by the Plan and the applicable Offering, at the purchase price specified in the Offering. No fractional shares will be issued unless specifically provided for in the Offering.

B. If any amount of accumulated Contributions remains in a Participant's account after the purchase of shares of Common Stock and such remaining amount is less than the amount required to purchase one share of Common Stock on the final Purchase Date of an Offering, then such remaining amount will be held in such Participant's account for the purchase of shares of Common Stock under the next Offering under the Plan, unless such Participant withdraws from or is not eligible to participate in such Offering, in which case such amount will be distributed to such Participant after the final Purchase Date, without interest. If the amount of Contributions remaining in a Participant's account after the purchase of shares of Common Stock is at least equal to the amount required to purchase one whole share of Common Stock on the final Purchase Date of an Offering, then such remaining amount will not roll over to the next Offering and will instead be distributed in full to such Participant after the final Purchase Date of such Offering without interest.

C. No Purchase Rights may be exercised to any extent unless the shares of Common Stock to be issued upon such exercise under the Plan are covered by an effective registration statement pursuant to the Securities Act and the Plan is in material compliance with all applicable federal, state, foreign and other securities and other laws applicable to the Plan. If on a Purchase Date the shares of Common Stock are not so registered or the Plan is not in such compliance, no Purchase Rights will be exercised on such Purchase Date, and the Purchase Date will be delayed until the shares of Common Stock are subject to such an effective registration statement and the Plan is in material compliance, except that the Purchase Date will in no event be more than 6 months from the Offering Date. If, on the Purchase Date, as delayed to the maximum extent permissible, the shares of Common Stock are not registered and the Plan is not in material compliance with all applicable laws, no Purchase Rights will be exercised and all accumulated but unused Contributions will be distributed to the Participants without interest.

IX. COVENANTS OF THE COMPANY.

The Company will seek to obtain from each federal, state, foreign or other regulatory commission or agency having jurisdiction over the Plan such authority as may be required to grant Purchase Rights and issue and sell shares of Common Stock thereunder. If, after commercially reasonable efforts, the

Company is unable to obtain the authority that counsel for the Company deems necessary for the grant of Purchase Rights or the lawful issuance and sale of Common Stock under the Plan, and at a commercially reasonable cost, the Company will be relieved from any liability for failure to grant Purchase Rights and/or to issue and sell Common Stock upon exercise of such Purchase Rights.

X. DESIGNATION OF BENEFICIARY.

A. The Company may, but is not obligated to, permit a Participant to submit a form designating a beneficiary who will receive any shares of Common Stock and/or Contributions from the Participant's account under the Plan if the Participant dies before such shares and/or Contributions are delivered to the Participant. The Company may, but is not obligated to, permit the Participant to change such designation of beneficiary. Any such designation and/or change must be on a form approved by the Company.

B. If a Participant dies, and in the absence of a valid beneficiary designation, the Company will deliver any shares of Common Stock otherwise issuable to the Participant were he to have remained alive and/or Contributions made by the Participant to the executor or administrator of the estate of the Participant. If no executor or administrator has been appointed (to the knowledge of the Company), the Company, in its sole discretion, may deliver such shares of Common Stock and/or Contributions to the Participant's spouse, dependents or relatives, or if no spouse, dependent or relative is known to the Company, then to such other person as the Company may designate.

XI. ADJUSTMENTS UPON CHANGES IN COMMON STOCK; CORPORATE TRANSACTIONS.

A. In the event of a Capitalization Adjustment, the Board will appropriately and proportionately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a), (ii) the class(es) and maximum number of securities by which the share reserve is to increase automatically each year pursuant to Section 3(a), (iii) the class(es) and number of securities subject to, and the purchase price applicable to, outstanding Offerings and Purchase Rights, and (iv) the class(es) and number of securities that are the subject of the purchase limits under each ongoing Offering. The Board will make these adjustments, and its determination will be final, binding and conclusive.

B. In the event of a Corporate Transaction, then: (i) any surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) may assume or continue outstanding Purchase Rights or may substitute similar rights (including a right to acquire the same consideration paid to the stockholders in the Corporate Transaction) for outstanding Purchase Rights (provided that the any such assumption, continuation or substitution is effectuated in a manner and on terms such that the assumed, continued or substituted Purchase Rights retain their favorable tax status to the Participants under Section 423(a) of the Code and their status as exempt from Section 409A of the Code), or (ii) if any surviving or acquiring corporation (or its parent company) does not assume or continue such Purchase Rights or does not substitute similar rights for such Purchase Rights, then the Participants' accumulated Contributions will be used to purchase shares of Common Stock within ten business days prior to the Corporate Transaction under the outstanding Purchase Rights, and the Purchase Rights will terminate immediately after such purchase.

XII. AMENDMENT, TERMINATION OR SUSPENSION OF THE PLAN.

A. The Board may amend the Plan at any time in any respect the Board deems necessary or advisable. However, except as provided in Section 11(a) relating to Capitalization Adjustments, stockholder approval will be required for any amendment of the Plan for which stockholder approval is required by applicable law (including, without limitation, the provisions of Section 423 of the Code and the regulations and other interpretive guidance issued thereunder relating to Employee Stock Purchase Plans) or listing requirements, including any amendment that either (i) increases the number of shares of Common Stock available for issuance under the Plan, (ii) materially expands the class of individuals eligible to become Participants and receive Purchase Rights, (iii) materially increases the benefits accruing to Participants under the Plan or materially reduces the price at which shares of Common Stock may be purchased under the Plan, (iv) materially extends the term of the Plan, or (v) expands the types of awards available for issuance under the Plan, but in each of (i) through (v) above only to the extent stockholder approval is required by applicable law (including, without limitation, the provisions of Section 423 of the Code and the regulations and other interpretive guidance thereunder) or listing requirements.

B. The Board may suspend or terminate the Plan at any time. No Purchase Rights may be granted under the Plan while the Plan is suspended or after it is terminated.

C. Any benefits, privileges, entitlements and obligations under any outstanding Purchase Rights granted before an amendment, suspension or termination of the Plan will not be materially impaired by any such amendment, suspension or termination except (i) with the consent of the person to whom such Purchase Rights were granted, (ii) as necessary to comply with any laws, listing requirements, or governmental regulations (including, without limitation, the provisions of Section 423 of the Code and the regulations and other interpretive guidance issued thereunder relating to Employee Stock Purchase Plans) including without limitation any such regulations or other guidance that may be issued or amended after the date the Plan is adopted by the Board, or (iii) as necessary to obtain or maintain favorable tax, listing, or regulatory treatment. To be clear, the Board may amend outstanding Purchase Rights without a Participant's consent if such amendment is necessary to ensure that the Purchase Right and/or the Plan continue to comply with the requirements of Section 423 of the Code.

XIII. EFFECTIVE DATE OF PLAN.

The Plan will become effective immediately prior to and contingent upon the IPO Date. No Purchase Rights will be exercised unless and until the Plan has been approved by the stockholders of the Company, which approval must be within 12 months before or after the date the Plan is adopted (or if required under Section 12(a) above, materially amended) by the Board.

XIV. MISCELLANEOUS PROVISIONS.

A. Proceeds from the sale of shares of Common Stock pursuant to Purchase Rights will constitute general funds of the Company.

B. A Participant will not be deemed to be the holder of, or to have any of the rights of a holder with respect to, shares of Common Stock subject to Purchase Rights unless and until the Participant's shares of Common Stock acquired upon exercise of Purchase Rights are recorded in the books of the Company (or its transfer agent).

C. The Plan and Offering do not constitute an employment contract. Nothing in the Plan or in the Offering will in any way alter the at will nature of a Participant's employment or be deemed to create in any way whatsoever any obligation on the part of any Participant to continue in the employ of the Company or a Related Corporation, or on the part of the Company or a Related Corporation to continue the employment of a Participant.

D. The provisions of the Plan will be governed by the laws of the State of Delaware without resort to that state's conflicts of laws rules.

XV. DEFINITIONS.

As used in the Plan, the following definitions will apply to the capitalized terms indicated below:

A. "***Board***" means the Board of Directors of the Company.

B. "***Capital Stock***" means each and every class of common stock of the Company, regardless of the number of votes per share.

C. "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Purchase Right after the date the Plan is adopted by the Board without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or other similar equity restructuring transaction, as that term is used in Financial Accounting Standards Board Accounting Standards Codification Topic 718 (or any successor thereto). Notwithstanding the foregoing, the conversion of any convertible securities of the Company will not be treated as a Capitalization Adjustment.

D. "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder .

E. "***Committee***" means a committee of one or more members of the Board to whom authority has been delegated by the Board in accordance with Section 2(c).

F. "***Common Stock***" means, as of the IPO Date, the common stock of the Company, having 1 vote per share.

G. "***Company***" means Gemphire Therapeutics Inc., a Delaware corporation.

H. "***Contributions***" means the payroll deductions and other additional payments specifically provided for in the Offering that a Participant contributes to fund the exercise of a Purchase Right. A

Participant may make additional payments into his or her account if specifically provided for in the Offering, and then only if the Participant has not already had the maximum permitted amount withheld during the Offering through payroll deductions.

I. "***Corporate Transaction***" means the consummation, in a single transaction or in a series of related transactions, of any one or more of the following events:

1. a sale or other disposition of all or substantially all, as determined by the Board in its sole discretion, of the consolidated assets of the Company and its Subsidiaries;

2. a sale or other disposition of at least 90% of the outstanding securities of the Company;

3. a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

4. a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

J. "***Director***" means a member of the Board.

K. "***Eligible Employee***" means an Employee who meets the requirements set forth in the document(s) governing the Offering for eligibility to participate in the Offering, provided that such Employee also meets the requirements for eligibility to participate set forth in the Plan.

L. "***Employee***" means any person, including an Officer or Director, who is "employed" for purposes of Section 423(b)(4) of the Code by the Company or a Related Corporation. However, service solely as a Director, or payment of a fee for such services, will not cause a Director to be considered an "Employee" for purposes of the Plan.

M. "***Employee Stock Purchase Plan***" means a plan that grants Purchase Rights intended to be options issued under an "employee stock purchase plan," as that term is defined in Section 423(b) of the Code.

N. "***Exchange Act***" means the Securities Exchange Act of 1934, as amended and the rules and regulations promulgated thereunder.

O. "***Fair Market Value***" means, as of any date, the value of the Common Stock determined as follows:

1. If the Common Stock is listed on any established stock exchange or traded on any established market, the Fair Market Value of a share of Common Stock will be the **closing sales price** for such stock as quoted on such exchange or market (or the exchange or market with the greatest volume of trading in the Common Stock) **on the date of determination**, as reported in such source as the Board deems reliable. Unless otherwise provided by the Board, if there is no closing sales price for the Common Stock on the date of determination, then the Fair Market Value will be the closing sales price on the last preceding date for which such quotation exists.

2. In the absence of such markets for the Common Stock, the Fair Market Value will be determined by the Board in good faith in compliance with applicable laws and in a manner that complies with Section 409A of the Code.

3. Notwithstanding the foregoing, for any Offering that commences on the IPO Date, the Fair Market Value of the shares of Common Stock on the Offering Date will be the price per share at which shares are first sold to the public in the Company's initial public offering as specified in the final prospectus for that initial public offering.

P. "***IPO Date***" means the date of the underwriting agreement between the Company and the underwriter(s) managing the initial public offering of the Common Stock, pursuant to which the Common Stock is priced for the initial public offering.

Q. "***Offering***" means the grant to Eligible Employees of Purchase Rights, with the exercise of those Purchase Rights automatically occurring at the end of one or more Purchase Periods. The terms and conditions of an Offering will generally be set forth in the "***Offering Document***" approved by the Board for that Offering.

R. "***Offering Date***" means a date selected by the Board for an Offering to commence.

S. "***Officer***" means a person who is an officer of the Company or a Related Corporation within the meaning of Section 16 of the Exchange Act.

T. "***Participant***" means an Eligible Employee who holds an outstanding Purchase Right.

U. "***Plan***" means this Gemphire Therapeutics Inc. 2016 Employee Stock Purchase Plan.

V. "***Purchase Date***" means one or more dates during an Offering selected by the Board on which Purchase Rights will be exercised and on which purchases of shares of Common Stock will be carried out in accordance with such Offering.

W. "***Purchase Period***" means a period of time specified within an Offering, generally beginning on the Offering Date or on the first Trading Day following the Offering Date, and ending on a Purchase Date. An Offering may consist of one or more Purchase Periods.

X. "***Purchase Right***" means an option to purchase shares of Common Stock granted pursuant to the Plan.

Y. "***Related Corporation***" means any "parent corporation" or "subsidiary corporation" of the Company whether now or subsequently established, as those terms are defined in Sections 424(e) and (f), respectively, of the Code.

Z. "***Securities Act***" means the Securities Act of 1933, as amended.

AA. "***Trading Day***" means any day on which the exchange(s) or market(s) on which shares of Common Stock are listed, including but not limited to the NYSE, Nasdaq Global Select Market, the Nasdaq Global Market, the Nasdaq Capital Market or any successors thereto, is open for trading.

Exhibit 10.6

EMPLOYMENT AGREEMENT

THIS EMPLOYMENT AGREEMENT (this ***"Agreement"***) by and between GEMPHIRE THERAPEUTICS INC., a Delaware corporation (the ***"Company"***) and JEFFREY S. MATHIESEN (the ***"Executive"***) is signed by the Company and the Executive on April 15, 2016, and is made effective as of the IPO Date (the ***"Effective Date"***).

BACKGROUND

The board of directors of the Company (the ***"Board"***) has determined that it is in the best interests of the Company and its stockholders to employ the Executive. The Executive is currently employed as its Chief Financial Officer subject to an offer letter dated September 19, 2015; and Amendments No. 1 and No. 2 to such offer letter dated November 30, 2015 and February 29, 2016, respectively (collectively, the ***"Prior Agreement"***). The Company and the Executive desire to enter into this Agreement to embody the terms of those continued relationships and to amend, restate and supersede the terms and conditions of the Prior Agreement in their entirety. This Agreement shall represent the entire understanding and agreement between the parties with respect to the Executive's employment with the Company.

NOW, THEREFORE, in consideration of the foregoing and the terms and conditions set forth herein, the parties agree as follows:

TERMS AND CONDITIONS

1. EMPLOYMENT PERIOD. The Company hereby agrees to continue the Executive in its employ, and the Executive hereby agrees to remain in the employ of the Company, subject to the terms and conditions of this Agreement, for the period commencing on the Effective Date and ending on the third anniversary of the Effective Date (the ***"Initial Term"***). The term of this Agreement will automatically be renewed for a term of one (1) year (each, a ***"Renewal Term"***) at the end of the Initial Term and at the end of each Renewal Term thereafter, provided that the Board does not provide written notice to the Executive of its intention not to renew this Agreement ninety (90) days prior to the expiration of the Initial Term or any Renewal Term. For purposes of this Agreement, ***"Employment Period"*** includes the Initial Term and any Renewal Term(s) thereafter. Notwithstanding the foregoing, in the event of a Change in Control, the date the Change in Control occurs shall become the Effective Date for all purposes thereafter, and each Change in Control thereafter shall result in a new Effective Date on the date of the latest Change in Control. This Agreement, on the Effective Date, amends, restates and supersedes the Prior Agreement.

2. TERMS OF EMPLOYMENT.

(a) Position and Duties.

(i) During the Employment Period, the Executive shall serve as the Chief Financial Officer of the Company, and in such other position or positions with the

Company and its subsidiaries as are consistent with the Executive's position as Chief Financial Officer of the Company, and shall have such duties and responsibilities as are assigned to the Executive by the Board consistent with the Executive's position as Chief Financial Officer of the Company.

(ii) During the Employment Period, and excluding any periods of vacation and sick leave to which the Executive is entitled, the Executive agrees to devote reasonable attention and time during normal business hours and on a full time basis to the business and affairs of the Company, to discharge the responsibilities assigned to the Executive hereunder, and to use the Executive's reasonable best efforts to perform faithfully and efficiently such responsibilities. During the Employment Period it shall not be a violation of this Agreement for the Executive to (A) be employed by the Company or any of its subsidiaries or Affiliates, (B) serve on corporate, civic or charitable boards, committees, or advisory boards, (C) deliver lectures, fulfill speaking engagements or teach at educational institutions, and (D) manage personal investments, so long as such activities do not significantly interfere with the performance of the Executive's responsibilities as an employee of the Company in accordance with this Agreement.

(b) Compensation.

(i) ***Base Salary.*** During the Employment Period, the Executive shall receive an annual base salary (the ***"Annual Base Salary"***) at least equal to $325,000, subject to applicable withholding taxes, which shall be paid in accordance with the Company's normal payroll practices for senior executive officers of the Company as in effect from time to time. During the Employment Period, the Annual Base Salary shall be reviewed at least annually by the Board or the Compensation Committee of the Board (the ***"Compensation Committee"***). Any increase in the Annual Base Salary shall not serve to limit or reduce any other obligation to the Executive under this Agreement. The Annual Base Salary shall not be reduced after any such increase (unless otherwise agreed to by the Executive) and the term "Annual Base Salary" as utilized in this Agreement shall refer to the Annual Base Salary as so increased or adjusted.

(ii) ***Annual Bonus.*** In addition to the Annual Base Salary, for each fiscal year ending during the Employment Period, the Executive shall be eligible for an annual cash bonus (the ***"Annual Bonus"***), as determined by the Compensation Committee, which value shall be up to forty (40) percent of the Annual Base Salary at the sole discretion of the Board and as determined in accordance with the policies and practices generally applicable to other senior executive officers of the Company. Each such Annual Bonus awarded to the Executive shall be paid sometime during the first seventy-five (75) days of the fiscal year next following the fiscal year for which the Annual Bonus is awarded, unless the Executive shall elect, in compliance with Treasury Regulation 1.409A-2(a), to defer the receipt of such Annual Bonus.

(iii) ***Long-Term Incentive Compensation.*** During the Employment Period, the Executive shall be entitled to participate in any stock option, performance share, performance unit or other equity based long-term incentive compensation plan, program or arrangement (the ***"Plans"***) generally made available to senior executive officers of the Company, on substantially the same terms and conditions as generally apply to such other

officers, except that the size of the awards made to the Executive shall reflect the Executive's position with the Company and the Compensation Committee's views.

(iv) ***Welfare Benefit Plans.*** During the Employment Period, the Executive and/or the Executive's family, as the case may be, shall be eligible for participation in and shall receive all benefits under welfare benefit plans, practices, policies and programs provided by the Company and its Affiliated companies (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 the Company.

(v) ***Shares and Stock Options.*** As of the Effective Date, the Executive shall be entitled to retain all shares of the Company's common stock (the ***"Common Stock"***) and stock options held by the Executive as of the Effective Date (the ***"Executive's Current Equity"***); provided, however, to the extent that the Executive remains employed by the Company as of the closing date of a Change in Control, the Executive's Current Equity shall fully vest effective as of the closing date of a Change in Control.

(vi) ***Expenses.*** During the Employment Period, the Executive shall be entitled to receive prompt reimbursement for all reasonable expenses incurred by the Executive in accordance with the plans, practices, policies and programs of the Company.

(vii) ***Vacation.*** During the Employment Period, the Executive shall be entitled to paid vacation in accordance with the plans, practices, policies and programs of the Company consistent with the treatment of other senior executive officers of the Company.

3. TERMINATION OF EMPLOYMENT.

(a) Notwithstanding Section 1, the Employment Period shall end upon the earliest to occur of (i) the Executive's death, (ii) a Termination due to Disability, (iii) a Termination for Cause, (iv) the Termination Date specified in connection with any exercise by the Company of its Termination Right, (v) a Termination for Good Reason, or (vi) the termination of this Agreement by Executive pursuant to Section 3(b). If the Employment Period terminates as of a date specified under this Section 3, the Executive agrees that, upon written request from the Company, the Executive shall resign from any and all positions the Executive holds with the Company and any of its subsidiaries and Affiliates, effective immediately following receipt of such request from the Company (or at such later date as the Company may specify).

(b) This Agreement may be terminated by the Executive at any time upon thirty (30) days prior written notice to the Company or upon such shorter period as may be agreed upon between the Executive and the Board. In the event of a termination by the Executive, the Company shall be obligated only to continue to pay the Executive's salary and provide other benefits provided by this Agreement up to the date of the termination.

(c) Benefits Payable Under Termination.

(i) In the event of the Executive's death during the Employment Period or a Termination due to Disability, the Executive or the Executive's beneficiaries or legal representatives shall be provided the Unconditional Entitlements (as defined below), including, but not limited to, any such Unconditional Entitlements that are or become payable under any Company plan, policy, practice or program or any contract or agreement with the Company by reason of the Executive's death or Termination due to Disability.

(ii) In the event of the Executive's Termination for Cause or termination by the Executive other than a Termination for Good Reason, the Executive shall be provided the Unconditional Entitlements.

(iii) In the event of a Termination for Good Reason or the exercise by the Company of its Termination Rights, the Executive shall be provided the Unconditional Entitlements and, subject to the Executive signing and delivering to the Company and not revoking before the sixtieth (60^{th}) day following the Termination Date, a general release of claims in favor of the Company and certain related parties in a form reasonably satisfactory to the Company and the Executive, which the Company shall provide to the Executive within seven (7) days following the Termination Date (the ***"Release"***), the Company shall provide the Executive the Conditional Benefits. Any and all amounts payable and benefits or additional rights provided to the Executive upon a termination of the Executive's employment pursuant to this Section 3(c) (other than the Unconditional Entitlements) shall only be payable or provided if the Executive signs and delivers the Release and if the Release becomes irrevocable prior to the sixtieth (60^{th}) day following the Termination Date. In no event shall the Executive be obligated to seek other employment or take any other action by way of mitigation of the amounts payable to the Executive under any of the provisions of this Agreement, nor shall the amount of any payment hereunder be reduced by any compensation earned by the Executive as a result of employment by a subsequent employer.

(d) Unconditional Entitlements. For purposes of this Agreement, the ***"Unconditional Entitlements"*** to which the Executive may become entitled under Section 3(c) are as follows:

(i) ***Earned Amounts.*** The Earned Compensation shall be paid within thirty (30) days following the termination of the Executive's employment hereunder, or if any part thereof constitutes a bonus which is subject to or conditioned upon any performance conditions, within thirty (30) days following the determination that such conditions have been met, provided that in no event shall the bonus be paid later than ninety (90) days following the Executive's termination of employment.

(ii) ***Benefits.*** All benefits payable to the Executive under any employee benefit plans (including, without limitation any pension plans or 401(k) plans) of the Company or any of its Affiliates applicable to the Executive at the time of termination of the Executive's employment with the Company and all amounts and benefits (other than the Conditional Benefits) which are vested or which the Executive is otherwise entitled to receive under the terms of or in accordance with any plan, policy, practice or program of, or any contract

or agreement with, the Company, at or subsequent to the date of the Executive's termination without regard to the performance by the Executive of further services or the resolution of a contingency, shall be paid or provided in accordance with and subject to the terms and provisions of such plans, it being understood that all such benefits shall be determined on the basis of the actual date of termination of the Executive's employment with the Company.

(iii) ***Indemnities.*** Any right which the Executive may have to claim a defense and/or indemnity for liabilities to or claims asserted by third parties in connection with the Executive's activities as an officer, director or employee of the Company shall be unaffected by the Executive's termination of employment and shall remain in effect in accordance with its terms.

(iv) ***Medical Coverage.*** The Executive shall be entitled to such continuation of health care coverage as is required under, and in accordance with, applicable law or otherwise provided in accordance with the Company's policies. The Executive shall be notified in writing of the Executive's rights to continue such coverage after the termination of the Executive's employment pursuant to this Section 3(d)(iv), provided that the Executive timely complies with the conditions to continue such coverage. The Executive understands and acknowledges that the Executive is responsible to make all payments required for any such continued health care coverage that the Executive may choose to receive.

(v) ***Business Expenses.*** The Executive shall be entitled to reimbursement, in accordance with the Company's policies regarding expense reimbursement as in effect from time to time, for all business expenses incurred by the Executive prior to the termination of the Executive's employment.

(vi) ***Stock Options/Equity Awards.*** Except to the extent additional rights are provided upon the Executive's qualifying to receive the Conditional Benefits, the Executive's rights with respect to any stock options and/or other equity awards granted to the Executive by the Company shall be governed by the terms and provisions of the Plans and Plan rules, provided that the Executive shall have ninety (90) days from the Termination Date to exercise vested options, and award agreements pursuant to which such stock options and equity awards were awarded, as in effect at the Termination Date.

(e) **Conditional Benefits.** For purposes of this Agreement, the ***"Conditional Benefits"*** to which the Executive may become entitled are as follows:

(i) ***Severance Amount.*** The Company shall pay the Executive a lump sum amount equal to the Severance Amount. Subject to Section 3(c)(iii) above, the Severance Amount shall be paid on the date that is sixty (60) days after the Termination Date (or upon the Executive's death, if earlier).

(ii) ***COBRA.*** Provided that the Executive timely elects continued health insurance coverage under the federal COBRA law, the Company will pay one-hundred percent of the cost of premiums for such health insurance continuation coverage during the twelve (12) months following the Termination Date. Notwithstanding anything to the contrary in this Agreement, the Executive's entitlement to any benefits or payments under this Section

3(e)(ii) shall cease on such date that the Executive becomes eligible to receive health insurance coverage from another employer group health plan due to Executive's employment with a future employer.

(iii) ***Stock Options.*** All of the Executive's stock options shall vest and become immediately exercisable in accordance with the applicable Original Stock Option Award Documents, subject to the same conditions as if the Executive had remained employed under this Agreement through the end of the Employment Period. Once exercisable, all stock options shall remain exercisable until the stock option termination date. All of the Executive's stock options that were vested and exercisable at the Termination Date shall remain exercisable until the expiration date of such stock options. Except as otherwise expressly provided herein, all stock options shall continue to be subject to the Original Stock Option Award Documents.

(iv) ***Equity Awards.*** Any restricted stock or other equity award subject to vesting shall continue to vest in accordance with the terms of the Original Award Documents, regardless of the Executive's termination of employment. Except as otherwise expressly provided herein, all such restricted stock or other equity awards shall be subject to, and administered in accordance with, the Original Award Documents.

(v) ***Additional Distribution Rules.*** Notwithstanding any other payment date or schedule provided in this Agreement to the contrary, if the Executive is deemed on the Termination Date of the Executive's employment to be a "specified employee" within the meaning of that term under Section 409A of the Code and the regulations thereunder ("***Section 409A***"), then each of the following shall apply:

(A) With regard to any payment that is considered "nonqualified deferred compensation" under Section 409A and payable on account of a "separation from service" (within the meaning of Section 409A and as provided in Section 3(g) of this Agreement), such payment shall not be made prior to the date which is the earlier of (1) the expiration of the six (6)-month period measured from the date of the Executive's "separation from service," and (2) the date of the Executive's death (the ***"Delay Period"***) to the extent required under Section 409A. Upon the expiration of the Delay Period, all payments delayed pursuant to this Section 3(e)(v)(A) (whether they would have otherwise been payable in a single sum or in installments in the absence of such delay) shall be paid to the Executive in a lump sum, and all remaining payments due under this Agreement shall be paid or provided in accordance with the normal payment dates specified for them herein; and

(B) To the extent that benefits to be provided during the Delay Period are considered "nonqualified deferred compensation" under Section 409A provided on account of a "separation from service," the Executive shall pay the cost of such benefits during the Delay Period, and the Company shall reimburse the Executive, to the extent that such costs would otherwise have been paid or reimbursed by the Company or to the extent that such benefits would otherwise have been provided by the Company at no cost to the Executive, for the Company's share of the cost of such benefits upon expiration of the Delay Period, and any remaining benefits shall be paid, reimbursed or provided by the Company in accordance with the procedures specified herein.

The foregoing provisions of this Section 3(e)(v)(A) shall not apply to any payments or benefits that are excluded from the definition of "nonqualified deferred compensation" under Section 409A, including, without limitation, payments excluded from the definition of "nonqualified deferred compensation" on account of being separation pay due to an involuntary separation from service under Treasury Regulation 1.409A-1(b)(9)(iii) or on account of being a "short-term deferral" under Treasury Regulation 1.409A-1(b)(4).

(f) **Definitions.** For purposes of this Agreement, the following terms shall have the meanings ascribed to them below:

(i) ***"Affiliate"*** means any corporation, partnership, limited liability company, trust or other entity which directly, or indirectly through one or more intermediaries, controls, is under common control with, or is controlled by, the Company.

(ii) ***"Change in Control"*** means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(A) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined Voting Power of the Company's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. Notwithstanding the foregoing, a Change in Control will not be deemed to occur (1) in connection with the issuance of securities of the Company as part of a joint venture or strategic partnership to which the Company is party, (2) on account of the acquisition of securities of the Company directly from the Company, (3) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company's securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities, (4) on account of the acquisition of securities of the Company by any individual who is, on the IPO Date, either an executive officer or a member of the Board (either, an ***"IPO Investor"***) and/or any entity in which an IPO Investor has a direct or indirect interest (whether in the form of voting rights or participation in profits or capital contributions) of more than 50% (collectively, the ***"IPO Entities"***), (5) on account of the IPO Entities continuing to hold shares that come to represent more than 50% of the combined Voting Power of the Company's then outstanding securities as a result of the conversion of any class of the Company's securities into another class of the Company's securities having a different number of votes per share pursuant to the conversion provisions set forth in the Company's Amended and Restated Certificate of Incorporation, or (6) solely because the level of Ownership held by any Exchange Act Person (the ***"Subject Person"***) exceeds the designated percentage threshold of the outstanding Voting Securities as a result of a repurchase or other acquisition of Voting Securities by the Company reducing the number of shares outstanding, provided that if a Change in Control would occur (but for the operation of this sentence) as a result of the acquisition of Voting Securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional Voting Securities that, assuming the repurchase or other acquisition had not occurred, increases the percentage of the then outstanding Voting Securities Owned by the Subject Person over the designated percentage threshold, then a Change in Control will be deemed to have occurred;

(B) a merger, consolidation or similar transaction involving (directly or indirectly) the Company is consummated and, immediately after the consummation of such merger, consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (1) outstanding voting securities representing more than 50% of the combined outstanding voting power of the surviving entity in such merger, consolidation or similar transaction or (2) more than 50% of the combined outstanding voting power of the parent of the surviving entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such transaction; *provided, however*, that a merger, consolidation or similar transaction will not constitute a Change in Control under this prong of the definition if the outstanding voting securities representing more than 50% of the combined voting power of the surviving entity or its parent are owned by the IPO Entities;

(C) a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its subsidiaries is consummated, other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and its subsidiaries to an entity, more than 50% of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition; *provided, however*, that a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its subsidiaries will not constitute a Change in Control under this prong of the definition if the outstanding voting securities representing more than 50% of the combined voting power of the acquiring entity or its parent are owned by the IPO Entities; or

(D) individuals who, on the Effective Date, are members of the Board (the ***"Incumbent Board"***) cease for any reason to constitute at least a majority of the members of the Board; *provided, however*, that if the appointment or election (or nomination for election) of any new Board member was approved or recommended by a majority vote of the members of the Incumbent Board then still in office, such new member will, for purposes of this Agreement, be considered as a member of the Incumbent Board.

Notwithstanding the foregoing definition, in the case of any payment or benefit that constitutes nonqualified deferred compensation under Section 409A of the Code, if necessary in order to ensure that the Executive does not incur liability for additional tax under Section 409A of the Code, a transaction (or series of related transactions) shall constitute a Change in Control only if, in addition to satisfying the foregoing definition, such transaction (or series of related transactions) also satisfies the definition of a "change in control event" under Treas. Reg. Section 1.409A-3(i)(5).

(iii) ***"Code"*** means the Internal Revenue Code of 1986, as amended and the rules and regulations promulgated thereunder.

(iv) ***"Earned Compensation"*** means any Annual Base Salary earned, but unpaid, for services rendered to the Company on or prior to the date on which the Employment Period ends pursuant to Section 3(a) (but excluding any salary and interest accrued thereon payment of which has been deferred).

(v) ***"Exchange Act"*** means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(vi) ***"Exchange Act Person"*** means any natural person, entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that "Exchange Act Person" will not include (A) the Company or any subsidiary of the Company, (B) any employee benefit plan of the Company or any subsidiary of the Company or any trustee or other fiduciary holding securities under an employee benefit plan of the Company or any subsidiary of the Company, (C) an underwriter temporarily holding securities pursuant to a registered public offering of such securities, (D) an entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of stock of the Company, or (E) any natural person, entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the IPO Date, is the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities.

(vii) ***"IPO Date"*** means the date of the underwriting agreement between the Company and the underwriter(s) managing the initial public offering of the Common Stock, pursuant to which the Common Stock is priced for the initial public offering.

(viii) ***"Non-Compete Amount"*** means, if the Executive is an officer or employee of the Company, if a Change in Control occurs and if during the 24 month period following the Change in Control the Executive is terminated without Cause (other than because of the Executive's death or

Disability) or the Executive terminates the Executive's employment for Good Reason, the amount mutually agreed upon by the Company and the Executive in exchange for the Executive's covenant not to engage in or otherwise compete against the business engaged in by the Company, directly or indirectly, whether as an employee, consultant, independent contractor, partner, shareholder, investor or in any other capacity, for a one-year period following termination of the Executive's employment with the Company.

(ix) ***"Original Stock Option Award Documents"*** means, with respect to any stock option, the terms and provisions of the award agreement and Plan pursuant to which such stock option was granted, each as in effect on the Termination Date.

(x) ***"Original Award Documents"*** means, with respect to any restricted stock or other equity award, the terms and provisions of the award agreement related to and the Plan governing such restricted stock or other equity award, each as in effect on the Termination Date.

(xi) ***"Own," "Owned," "Owner," "Ownership"*** means a person or entity will be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(xii) ***"Person"*** shall have the same meaning as ascribed to such term in Section 3(a)(9) of the Exchange Act, as supplemented by Section 13(d)(3) of the Exchange Act,

and shall include any group (within the meaning of Rule 13d-5(b) under the Exchange Act); provided that Person shall not include (A) the Company or any of its Affiliates, or (B) any employee benefit plan (including an employee stock ownership plan or employee stock purchase plan) sponsored by the Company or any of its Affiliates.

(xiii) ***"Severance Amount"*** means an amount equal to 0.5 times the sum of (A) the Annual Base Salary as in effect as of the Termination Date less the Non-Compete Amount (if applicable) and (B) an amount equal to a prorated portion of the Executive's cash bonus for the year in which the Termination Date occurs, with such prorated amount determined by multiplying the Executive's cash bonus for the year in which the Termination Date occurs by a fraction, the numerator of which is the number of full months during such year in which the Executive was employed and the denominator of which is twelve (12).

(xiv) ***"Termination for Cause"*** means a termination of the Executive's employment by the Company due to (A) an intentional act or acts of dishonesty undertaken by the Executive and intended to result in substantial gain or personal enrichment to the Executive at the expense of the Company, (B) unlawful conduct or gross misconduct that is willful and deliberate on the Executive's part and that, in either event, is materially injurious to the Company, (C) the conviction of the Executive of, or the Executive's entry of a no contest or *nolo contendre* plea to, a felony, (D) material breach by the Executive of the Executive's fiduciary obligations as an officer or director of the Company, (E) a persistent failure by the Executive to perform the duties and responsibilities of the Executive's employment hereunder, which failure is willful and deliberate on the Executive's part and is not remedied by the Executive within 30 days after the Executive's receipt of written notice from the Company of such failure, or (F) material breach of any terms and conditions of this Agreement by Executive, which breach has not been cured by the Executive within ten days after written notice thereof to Executive from the Company. For the purposes of this Section 3(f)(xiv), no act or failure to act on the Executive's part shall be considered "dishonest," "willful" or "deliberate" unless intentionally done or omitted to be done by the Executive in bad faith and without reasonable belief that the Executive's action or omission was in the best interests of the Company. 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 Executive in good faith and in the best interests of the Company.

(xv) ***"Termination Date"*** means the earlier to occur of (A) the date the Company specifies in writing to the Executive in connection with the exercise of its Termination Right or (B) the date the Executive specifies in writing to the Company in connection with any notice to effect a Termination for Good Reason. Notwithstanding the foregoing, a termination of employment will not be deemed to have occurred for purposes of any provision of this Agreement providing for the payment of any amounts or benefits subject to Section 409A upon or following a termination of employment unless such termination is also a "separation from service" (within the meaning of Section 409A), and notwithstanding anything contained herein to the contrary, the date on which such separation from service takes place will be the Termination Date.

(xvi) ***"Termination due to Disability"*** means a termination of the Executive's employment by the Company because the Executive has been incapable, after

reasonable accommodation, of substantially fulfilling the positions, duties, responsibilities and obligations set forth in this Agreement because of physical, mental or emotional incapacity resulting from injury, sickness or disease for a period of (A) six (6) consecutive months or (B) an aggregate of nine (9) months (whether or not consecutive) in any twelve (12) month period. Any question as to the existence, extent or potentiality of the Executive's disability shall be determined by a qualified physician selected by the Company with the consent of the Executive, which consent shall not be unreasonably withheld. The Executive or the Executive's legal representatives or any adult member of the Executive's immediate family shall have the right to present to such physician such information and arguments as to the Executive's disability as he, she or they deem appropriate, including the opinion of the Executive's personal physician.

(xvii) ***"Termination for Good Reason"*** means a termination of the Executive's employment by the Executive within thirty (30) days of the Company's failure to cure, in accordance with the procedures set forth below, any of the following events: (A) a reduction in Executive's Annual Base Salary as in effect immediately prior to such reduction by more than ten percent (10%) without Executive's written consent, unless such reduction is made pursuant to an across the board reduction applicable to all senior executives of the Company; (B) the removal of the Executive by the Company from the position of Chief Financial Officer of the Company; (C) a material reduction in the Executive's duties and responsibilities as in effect immediately prior to such reduction; or (D) a material breach of any material provision of this Agreement by the Company to which the Executive shall have delivered a written notice to the Board within forty-five (45) days of the Executive's having actual knowledge of the occurrence of one of such events stating that the Executive intends to terminate the Executive's employment 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 twenty-one (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 Executive shall have consented in writing to the occurrence of the event giving rise to the claim of Termination for Good Reason.

(xviii) ***"Termination Right"*** means the right of the Company, in its sole, absolute and unfettered discretion, to terminate the Executive's employment under this Agreement for any reason or no reason whatsoever. For the avoidance of doubt, any Termination for Cause effected by the

Company shall not constitute the exercise of its Termination Right.

(xix) ***"Voting Power"*** means such number of Voting Securities as shall enable the holders thereof to cast all the votes which could be cast in an annual election of directors of a company.

(xx) ***"Voting Securities"*** means all securities entitling the holders thereof to vote in an annual election of directors of a company.

(g) Conflict with Plans. As permitted under the terms of the applicable Plans, the Company and the Executive agree that the definitions of Termination for Cause or Termination for Good Reason set forth in this Section 3 shall apply in place of any similar definition or comparable concept applicable under either of the Plans (or any similar definition in any successor plan).

(h) Section 409A. It is intended that payments and benefits under this Agreement either be excluded from or comply with the requirements of Section 409A and the guidance issued thereunder and, accordingly, to the maximum extent permitted, this Agreement shall be interpreted consistent with such intent. In the event that any provision of this Agreement is subject to but fails to comply with Section 409A, the Company may revise the terms of the provision to correct such noncompliance to the extent permitted under any guidance, procedure or other method promulgated by the Internal Revenue Service now or in the future or otherwise available that provides for such correction as a means to avoid or mitigate any taxes, interest or penalties that would otherwise be incurred by the Executive on account of such noncompliance. Provided, however, that in no event whatsoever shall the Company be liable for any additional tax, interest or penalty imposed upon or other detriment suffered by the Executive under Section 409A or damages for failing to comply with Section 409A. Solely for purposes of determining the time and form of payments due the Executive under this Agreement (including any payments due under Sections 3(c) or 5) or otherwise in connection with the Executive's termination of employment with the Company, the Executive shall not be deemed to have incurred a termination of employment unless and until the Executive shall incur a "separation from service" within the meaning of Section 409A. The parties agree, as permitted in accordance with the final regulations thereunder, a "separation from service" shall occur when the Executive and the Company reasonably anticipate that the Executive's level of bona fide services for the Company (whether as an employee or an independent contractor) will permanently decrease to no more than forty (40) percent of the average level of bona fide services performed by the Executive for the Company over the immediately preceding thirty-six (36) months. The determination of whether and when a separation from service has occurred shall be made in accordance with this subparagraph and in a manner consistent with Treasury Regulation Section 1.409A-1(h). All reimbursements and in-kind benefits provided under this Agreement shall be made or provided in accordance with the requirements of Section 409A to the extent that such reimbursements or in-kind benefits are subject to Section 409A, including, where applicable, the requirements that (i) any reimbursement is for expenses incurred during the Executive's lifetime (or during a shorter period of time specified in this Agreement), (ii) the amount of expenses eligible for reimbursement (and the in-kind benefits to be provided) during a calendar year may not affect the expenses eligible for reimbursement (and the in-kind benefits to be provided) in any other calendar year, (iii) the reimbursement of an eligible expense will be made on or before the last day of the calendar year following the year in which the expense is incurred, and (iv) the right to reimbursement (or in-kind benefits) is not subject to set off or liquidation or exchange for any other benefit. For purposes of Section 409A, the Executive's right to any installment payments under this Agreement shall be treated as a right to receive a series of separate and distinct payments. Whenever a payment under this Agreement specifies a payment period with reference to a number of days (e.g., "payment shall be made within ninety (90) days following the date of termination"), the actual date of payment within the specified period shall be within the sole discretion of the Company.

4. EXECUTIVE REMEDY. The Executive shall be under no obligation to seek other employment or other engagement of the Executive's services. The Executive acknowledges and agrees that the payment and rights provided under Section 3 are fair and reasonable, and are the Executive's sole and exclusive remedy, in lieu of all other remedies at law or in equity, for termination of the Executive's employment by the Company upon exercise of its Termination Right pursuant to this Agreement or upon a Termination for Good Reason.

5. ADDITIONAL PAYMENTS FOLLOWING A CHANGE IN CONTROL.

(a) If, during the Employment Period and within two (2) years after a Change in Control, the Company shall terminate the Executive's employment other than due to the Executive's death, a Termination for Cause, a Termination due to Disability or if the Executive shall effect a Termination for Good Reason:

(i) the Company shall pay to the Executive, in a lump sum in cash within thirty (30) days after the Termination Date, the aggregate of the following amounts:

(A) the Unconditional Entitlements;

(B) the amount equal to the product of 1 times the sum of (y) the Annual Base Salary, and (z) the greater of the target bonus for the then current fiscal year under the Plans or any successor annual bonus plan and the average Annual Bonus paid to or for the benefit of the Executive for the prior three (3) full years (or any shorter period during which the Executive has been employed by the Company), and

(ii) the Company shall provide the Executive the Conditional Benefits minus the Severance Amount.

(b) If any payment or benefit (including payments and benefits pursuant to this Agreement) the Executive would receive in connection with a Change in Control from the Company or otherwise (the ***"Payment"***) would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this paragraph, be subject to the excise tax imposed by Section 4999 of the Code (the ***"Excise Tax"***), then the Company shall cause to be determined, before any amounts of the Payment are paid to the Executive, which of the following two alternative forms of payment shall be paid to the Executive: (A) payment in full of the entire amount of the Payment (a ***"Full Payment"***), or (B) payment of only a part of the Payment so that the Executive receives the largest payment possible without the imposition of the Excise Tax (a ***"Reduced Payment"***). A Full Payment shall be made in the event that the amount received by the Executive on a net after-tax basis is greater than what would be received by the Executive on a net after-tax basis if the Reduced Payment were made, otherwise a Reduced Payment shall be made. If a Reduced Payment is made, (i) the Payment shall be paid only to the extent permitted under the Reduced Payment alternative, and the Executive shall have no rights to any additional payments and/or benefits constituting the Payment, and (ii) reduction in payments and/or benefits shall occur in the following order: (A) reduction of cash payments; (B) cancellation of accelerated vesting of equity awards other than stock options; (C) cancellation of accelerated vesting of stock options; and (D) reduction of other benefits paid to Executive. In the event that acceleration of compensation from the Executive's equity awards is to be reduced, such acceleration of vesting shall be canceled in the reverse order of the date of grant.

(c) The independent registered public accounting firm engaged by the Company for general audit purposes as of the day prior to the effective date of the Change in Control, or a nationally recognized law firm, shall make all determinations required to be made under this Section 5. If the independent registered public accounting firm or nationally

recognized law firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting the Change in Control, the Company shall appoint a nationally recognized law firm or independent registered public accounting firm or law firm to make the determinations required hereunder. The Company shall bear all expenses with respect to the determinations by such independent registered public accounting firm required to be made hereunder.

(d) The independent registered public accounting firm or law firm engaged to make the determinations hereunder shall provide its calculations, together with detailed supporting documentation, to the Company and the Executive within fifteen (15) calendar days after the date on which Executive's right to a Payment is triggered (if requested at that time by the Company or Executive) or such other time as requested by the Company or Executive. Any good faith determinations of the accounting firm or law firm made hereunder shall be final, binding and conclusive upon the Company and Executive.

(e) The Company's obligation to make the payments provided for in this Agreement and otherwise to perform its obligations hereunder shall not be affected by any set-off, counterclaim, recoupment, defense or other claim, right or action which the Company may have against the Executive or others. In no event shall the Executive be obligated to seek other employment or take any other action by way of mitigation of the amounts payable to the Executive under any of the provisions of this Agreement and such amounts shall not be reduced whether or not the Executive obtains other employment. The Company agrees to pay as incurred, to the full extent permitted by law, all legal fees and expenses which the Executive may reasonably incur as a result of any contest (regardless of the outcome thereof) by the Company, the Executive or others of the validity or enforceability of, or liability under, any provision of this Agreement or any guarantee of performance thereof (including as a result of any contest by the Executive about the amount of any payment pursuant to this Agreement), plus, in each case, interest on any delayed payment at the applicable Federal rate provided for in Section 7872(f)(2)(A) of the Code.

6. CONFIDENTIALITY.

(a) Confidentiality. Without the prior written consent of the Company, except (y) as reasonably necessary in the course of carrying out the Executive's duties hereunder or (z) to the extent required by an order of a court having competent jurisdiction or under subpoena from an appropriate government agency, the Executive shall not disclose any Confidential Information unless such Confidential Information has been previously disclosed to the public by the Company or has otherwise become available to the public (other than by reason of the Executive's breach of this Section 6(a)). The term ***"Confidential Information"*** shall include, but shall not be limited to: (i) the identities of the existing and prospective customers or clients of the Company and its Affiliates, including names, addresses, credit status, and pricing levels; (ii) the buying and selling habits and customs of existing and prospective customers or clients of the Company and its Affiliates; (iii) financial information about the Company and its Affiliates; (iv) product and systems specifications, concepts for new or improved products and other product or systems data; (v) the identities of, and special skills possessed by, employees of the Company and its Affiliates; (vi) the identities of and pricing information about the suppliers and vendors of the Company and its Affiliates; (vii) training programs developed by the

Company or its Affiliates; (viii) pricing studies, information and analyses; (ix) current and prospective products and inventories; (x) financial models, business projections and market studies; (xi) the financial results and business conditions of the Company and its Affiliates; (xii) business plans and strategies of the Company and its Affiliates; (xiii) special processes, procedures, and services of suppliers and vendors of the Company and its Affiliates; and (xiv) computer programs and software developed by the Company or its Affiliates.

(b) Company Property. Promptly following the Executive's termination of employment, the Executive shall return to the Company all property of the Company, and all copies thereof in the Executive's possession or under the Executive's control, except that the Executive may retain the Executive's personal notes, diaries, rolodexes, mobile devices, calendars and electronic calendars, and correspondence of a personal nature.

(c) Nonsolicitation. The Executive agrees that, while the Executive is employed by the Company and during the one-year period following the Executive's termination of employment with the Company (the ***"Restricted Period"***), the Executive shall not directly or indirectly, (i) solicit any individual who is, on the Termination Date (or was, during the six-month period prior to the Termination Date), employed by the Company or its Affiliates to terminate or refrain from renewing or extending such employment or to become employed by or become a consultant to any other individual or entity other than the Company or its Affiliates or (ii) induce or attempt to induce any customer or investor (in each case, whether former, current or prospective), supplier, licensee or other business relation of the Company or any of its Affiliates to cease doing business with the Company or such Affiliate, or in any way interfere with the relationship between any such customer, investor, supplier, licensee or business relation, on the one hand, and the Company or any of its Affiliates, on the other hand. Any payments owed to Executive at time of separation as described herein shall be contingent upon Executive's compliance with the post-employment nonsolicitation provisions.

(d) Noncompetition. The Executive agrees that, during the Restricted Period, the Executive shall not be employed by, serve as a consultant to, or otherwise assist or directly or indirectly provide services to a Competitor (as defined below) if (i) the services that the Executive is to provide to the Competitor are the same as, or substantially similar to, any of the services that the Executive provided to the Company or the Affiliates, and such services are to be provided with respect to any location in which the Company or an Affiliate had material operations during the twelve (12) month period prior to the Termination Date, or with respect to any location in which the Company or an Affiliate had devoted material resources to establishing operations during the twelve (12) month period prior to the Termination Date; or (ii) the trade secrets, Confidential Information, or proprietary information (including, without limitation, confidential or proprietary methods) of the Company and the Affiliates to which the Executive had access could reasonably be expected to benefit the Competitor if the Competitor were to obtain access to such secrets or information. For purposes of this paragraph, services provided by others shall be deemed to have been provided by the Executive to Competitor if the Executive had material supervisory responsibilities with respect to the provision of such services. The term ***"Competitor"*** means any enterprise (including a person, firm, business, division, or other unit, whether or not incorporated) during any period in which a material portion of its business is (and during any period in which it intends to enter into business activities that would be) materially competitive in any way with any business in which the Company or any of the

Affiliates were engaged during the twelve (12) month period prior to the Executive's Termination Date (including, without limitation, any business if the Company devoted material resources to entering in such business during such twelve (12) month period), but for purposes of clause (c) above, the term "Competitor " shall be limited to those businesses to which the Executive devoted more than an insignificant amount of time while employed by the Company. Notwithstanding the foregoing, the term ***"Competitor"*** shall not include a business of a Competitor if such business would not, as a stand-alone enterprise, constitute a "Competitor" under the foregoing definition, provided that Executive does not render any services to, or otherwise assist the portion of the business that competes with the Company and its Affiliates. For the avoidance of doubt, the Company's and Affiliates' businesses shall include, without limitation, the lines of business set forth in the Company's annual report on Form 10-K, provided that nothing in this sentence shall be construed to limit the type of business of the Company and the Affiliates or the restrictions with respect to such businesses in the future. Any payments owed to Executive at time of separation as described herein shall be contingent upon Executive's compliance with the post-employment noncompetition provisions.

(e) Equitable Remedies. The Executive acknowledges that the Company would be irreparably injured by a violation of Section 6 and the Executive agrees that the Company, in addition to any other remedies available to it for such breach or threatened breach, on meeting the standards required by law, shall be entitled to a preliminary injunction, temporary restraining order, or other equivalent relief, restraining the Executive from any actual or threatened breach of Section 6. If a bond is required to be posted in order for the Company to secure an injunction or other equitable remedy, the parties agree that said bond need not be more than a nominal sum.

(f) Employee Proprietary Information and Inventions Assignment. The terms of that certain Employee Proprietary Information, Inventions Assignment and Non-Competition Agreement between the Executive and the Company dated September 18, 2015 are hereby incorporated by reference (the ***"Invention Assignment Agreement"***). To the extent that there are any conflicts between the terms and conditions of the Invention Assignment Agreement and this Agreement, the terms and conditions of this Agreement shall control. All non-conflicting terms of the Invention Assignment Agreement are hereby expressly preserved.

(g) Severability; Blue Pencil. The Executive acknowledges and agrees that the Executive has had the opportunity to seek advice of counsel in connection with this Agreement and the restrictive covenants contained herein are reasonable in geographical scope temporal duration and in all other respects. If it is determined that any provision of this Section 6 is invalid or unenforceable, the remainder of the provisions of this Section 6 shall not thereby be affected and shall be given full effect, without regard to the invalid portions. If any court or other decision-maker of competent jurisdiction determines that any of the covenants in this Section 6 is unenforceable because of the duration or geographic scope, of such provision, then after such determination becomes final and unappealable, the duration or scope of such provision, as the case may be, shall be reduced so that such provision becomes enforceable, and in its reduced form, such provision shall be enforced.

7. SUCCESSORS.

(a) This Agreement is personal to the Executive and without the prior written consent of the Company shall not be assignable by the Executive otherwise than by will or the laws of descent and distribution. This Agreement shall inure to the benefit of and be enforceable by the Executive's legal representatives.

(b) This Agreement shall inure to the benefit of and be binding upon the Company and its successors and assigns and any party acting in the form of a receiver or trustee capacity.

(c) The Company will require any successor (whether direct or indirect, by purchase, merger, consolidation or otherwise) to all or substantially all of the business and/or assets of the Company to assume expressly and agree to perform this Agreement in the same manner and to the same extent that the Company would be required to perform it if no such succession had taken place. As used in this Agreement, "Company" shall mean the Company as hereinbefore defined and any successor to its business and/or assets as aforesaid which assumes and agrees to perform this Agreement by operation of law, or otherwise.

8. MISCELLANEOUS.

(a) This Agreement shall be construed, and the rights and obligations of the parties hereunder determined, in accordance with the substantive laws of the State of Michigan, without regard to its conflict-of-laws principles. For the purposes of any suit, action or proceeding based upon, arising out of or relating to this Agreement or the negotiation, execution or performance hereof, the parties hereby expressly submit to the jurisdiction of all federal and state courts sitting within the confines of the Federal Eastern District of Michigan (the ***"Venue Area"***) and consent that any order, process, notice of motion or other application to or by any such court or a judge thereof may be served within or without such court's jurisdiction by registered mail or by personal service in accordance with Section 8(b). The parties agree that such courts shall have the exclusive jurisdiction over any such suit, action or proceeding commenced by either or both of said parties. Each party hereby irrevocably waives any objection that it may now or hereafter have to the laying of venue of any suit, action or proceeding based upon, arising out of or relating to this Agreement or the negotiation, execution or performance hereof, brought in any federal or state court sitting within the confines of the Venue Area and hereby further irrevocably waives any claim that any such suit, action or proceeding brought in any such court has been brought in an inconvenient forum. The captions of this Agreement are not part of the provisions hereof and shall have no force or effect. This Agreement may not be amended or modified otherwise than by a written agreement executed by the parties hereto or their respective successors and legal representatives.

(b) All notices and other communications hereunder shall be in writing and shall be given by hand delivery to the other party or by registered or certified mail, return receipt requested, postage prepaid, addressed as follows:

If to the Executive:	At Executive's address as it appears in the Company's books and records or at such other

place as Executive shall have designated by notice as herein provided to the Company

If to the Company:

Gemphire Therapeutics Inc.
Attn: Chairman of the Board
Gemphire Therapeutics Inc.
43334 Seven Mile Road, Suite 1000
Northville, Michigan 48167
Telephone: (248) 681-9815
Fax: (734) 864-5765

with a copy to:

Honigman Miller Schwartz and Cohn LLP
350 East Michigan Avenue, Suite 300
Kalamazoo, Michigan 49007
Attention: Phillip D. Torrence, Esq.
Telephone: (269) 337-7702
Fax: (269) 337-7703
Email: ptorrence@honigman.com

or to such other address as either party shall have furnished to the other in writing in accordance herewith. Notice and communications shall be effective when actually received by the addressee.

(c) The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement.

(d) The Company hereby agrees to indemnify the Executive and hold the Executive harmless to the extent provided under Certificate of Incorporation of the Company (as amended), the By-Laws of the Company (as amended) and the Indemnification Agreement entered into by and between the Company and the Executive against and in respect of any and all actions, suits, proceedings, claims, demands, judgments, costs, expenses (including reasonable attorney's fees), losses, and damages resulting from the Executive's good faith performance of the Executive's duties and obligations with the Company. This obligation shall survive the termination of the Executive's employment with the Company.

(e) From and after the Effective Date, the Company shall cover the Executive under directors' and officers' liability insurance both during and, while potential liability exists, after the Employment Period in the same amount and to the same extent as the Company covers its other executive officers and directors.

(f) The Company may withhold from any amounts payable under this Agreement such Federal, state, local or foreign taxes as shall be required to be withheld pursuant to any applicable law or regulation.

(g) The Executive's or the Company's failure to insist upon strict compliance with any provision of this Agreement or the failure to assert any right the Executive or the Company may have hereunder, including, without limitation, the right of the executive to effect a

Termination for Good Reason shall not be deemed to be a waiver of such provision of right or any other provision or right of this Agreement.

(h) This Agreement, the Invention Assignment Agreement, and all agreements, documents, instruments, schedules, exhibits or certificates prepared in connection herewith, represent the entire understanding and agreement between the parties with respect to the subject matter hereof, supersede all prior agreements or negotiations between such parties, including the Prior Agreement, and may be amended, supplemented or changed only by an agreement in writing which makes specific reference to this Agreement or the agreement or document delivered pursuant hereto, as the case may be, and which is signed by the party against whom enforcement of any such amendment, supplement or modification is sought.

SIGNATURES ON THE FOLLOWING PAGE

IN WITNESS WHEREOF, the Company and the Executive have executed this Agreement as of the date first above written.

THE EXECUTIVE:

/s/ Jeffrey S. Mathiesen
JEFFREY S. MATHIESEN

THE COMPANY:

GEMPHIRE THERAPEUTICS INC.

By: /s/ P. Kent Hawryluk
Name: P. KENT HAWRYLUK
Title: CHAIR OF THE COMPENSATION COMMITTEE

EMPLOYMENT AGREEMENT

THIS EMPLOYMENT AGREEMENT (this ***"Agreement"***) by and between GEMPHIRE THERAPEUTICS INC., a Delaware corporation (the ***"Company"***) and [ ] (the ***"Executive"***) is signed by the Company and the Executive on [ ], 201[_], and is made effective as of the IPO Date (the ***"Effective Date"***).

BACKGROUND

The board of directors of the Company (the ***"Board"***) has determined that it is in the best interests of the Company and its stockholders to employ the Executive. The Executive is currently employed as its [ ] subject to an employment agreement dated [ ], (the ***"Prior Agreement"***). The Company and the Executive desire to enter into this Agreement to embody the terms of those continued relationships and to amend, restate and supersede the terms and conditions of the Prior Agreement in their entirety. This Agreement shall represent the entire understanding and agreement between the parties with respect to the Executive's employment with the Company.

NOW, THEREFORE, in consideration of the foregoing and the terms and conditions set forth herein, the parties agree as follows:

TERMS AND CONDITIONS

1. EMPLOYMENT PERIOD. The Company hereby agrees to continue the Executive in its employ, and the Executive hereby agrees to remain in the employ of the Company, subject to the terms and conditions of this Agreement, for the period commencing on the Effective Date and ending on the third anniversary of the Effective Date (the ***"Initial Term"***). The term of this Agreement will automatically be renewed for a term of one (1) year (each, a ***"Renewal Term"***) at the end of the Initial Term and at the end of each Renewal Term thereafter, provided that the Board does not provide written notice to the Executive of its intention not to renew this Agreement ninety (90) days prior to the expiration of the Initial Term or any Renewal Term. For purposes of this Agreement, ***"Employment Period"*** includes the Initial Term and any Renewal Term(s) thereafter. Notwithstanding the foregoing, in the event of a Change in Control, the date the Change in Control occurs shall become the Effective Date for all purposes thereafter, and each Change in Control thereafter shall result in a new Effective Date on the date of the latest Change in Control. This Agreement, on the Effective Date, amends, restates and supersedes the Prior Agreement.

2. TERMS OF EMPLOYMENT.

(a) Position and Duties.

(i) During the Employment Period, the Executive shall serve as the [ ] of the Company, and in such other position or positions with the Company and its subsidiaries as are consistent with the Executive's positions as [ ] of the Company, and

shall have such duties and responsibilities as are assigned to the Executive by the Board consistent with the Executive's position as [ ] of the Company.

(ii) During the Employment Period, and excluding any periods of vacation and sick leave to which the Executive is entitled, the Executive agrees to devote reasonable attention and time during normal business hours and on a full time basis to the business and affairs of the Company, to discharge the responsibilities assigned to the Executive hereunder, and to use the Executive's reasonable best efforts to perform faithfully and efficiently such responsibilities. During the Employment Period it shall not be a violation of this Agreement for the Executive to (A) be employed by the Company or any of its subsidiaries or Affiliates, (B) serve on corporate, civic or charitable boards, committees, or advisory boards, (C) deliver lectures, fulfill speaking engagements or teach at educational institutions, (D) manage personal investments, so long as such activities do not significantly interfere with the performance of the Executive's responsibilities as an employee of the Company in accordance with this Agreement.

(b) Compensation.

(i) ***Base Salary.*** During the Employment Period, the Executive shall receive an annual base salary (the ***"Annual Base Salary"***) at least equal to $[ ], subject to applicable withholding taxes, which shall be paid in accordance with the Company's normal payroll practices for senior executive officers of the Company as in effect from time to time. During the Employment Period, the Annual Base Salary shall be reviewed at least annually by the Board or the Compensation Committee of the Board (the ***"Compensation Committee"***). Any increase in the Annual Base Salary shall not serve to limit or reduce any other obligation to the Executive under this Agreement. The Annual Base Salary shall not be reduced after any such increase (unless otherwise agreed to by the Executive) and the term "Annual Base Salary" as utilized in this Agreement shall refer to the Annual Base Salary as so increased or adjusted.

(ii) ***Annual Bonus.*** In addition to the Annual Base Salary, for each fiscal year ending during the Employment Period, the Executive shall be eligible for an annual cash bonus (the ***"Annual Bonus"***), as determined by the Compensation Committee, which value shall be up to [ ] percent of the Annual Base Salary and as determined in accordance with the policies and practices generally applicable to other senior executive officers of the Company. Each such Annual Bonus awarded to the Executive shall be paid sometime during the first seventy-five (75) days of the fiscal year next following the fiscal year for which the Annual Bonus is awarded, unless the Executive shall elect, in compliance with Treasury Regulation 1.409A-2(a), to defer the receipt of such Annual Bonus.

(iii) ***Long-Term Incentive Compensation.*** During the Employment Period, the Executive shall be entitled to participate in any stock option, performance share, performance unit or other equity based long-term incentive compensation plan, program or arrangement (the ***"Plans"***) generally made available to senior executive officers of the Company, on substantially the same terms and conditions as generally apply to such other officers, except that the size of the awards made to the Executive shall reflect the Executive's position with the Company and the Compensation Committee's views.

(iv) ***Welfare Benefit Plans.*** During the Employment Period, the Executive and/or the Executive's family, as the case may be, shall be eligible for participation in and shall receive all benefits under welfare benefit plans, practices, policies and programs provided by the Company and its

Affiliated companies (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 the Company.

(v) ***Shares and Stock Options.*** As of the Effective Date, the Executive shall be entitled to retain all shares of the Company's common stock (the ***"Common Stock"***) and stock options held by the Executive as of the Effective Date (the ***"Executive's Current Equity"***); provided, however, to the extent that the Executive remains employed by the Company as of the closing date of a Change in Control, the Executive's Current Equity shall fully vest effective as of the closing date of a Change in Control.

(vi) ***Expenses.*** During the Employment Period, the Executive shall be entitled to receive prompt reimbursement for all reasonable expenses incurred by the Executive in accordance with the plans, practices, policies and programs of the Company.

(vii) ***Vacation.*** During the Employment Period, the Executive shall be entitled to paid vacation in accordance with the plans, practices, policies and programs of the Company consistent with the treatment of other senior executive officers of the Company.

3. TERMINATION OF EMPLOYMENT.

(a) Notwithstanding Section 1, the Employment Period shall end upon the earliest to occur of (i) the Executive's death, (ii) a Termination due to Disability, (iii) a Termination for Cause, (iv) the Termination Date specified in connection with any exercise by the Company of its Termination Right, (v) a Termination for Good Reason, or (vi) the termination of this Agreement by Executive pursuant to Section 3(b). If the Employment Period terminates as of a date specified under this Section 3, the Executive agrees that, upon written request from the Company, the Executive shall resign from any and all positions the Executive holds with the Company and any of its subsidiaries and Affiliates, effective immediately following receipt of such request from the Company (or at such later date as the Company may specify).

(b) This Agreement may be terminated by the Executive at any time upon thirty (30) days prior written notice to the Company or upon such shorter period as may be agreed upon between the Executive and the Board. In the event of a termination by the Executive, the Company shall be obligated only to continue to pay the Executive's salary and provide other benefits provided by this Agreement up to the date of the termination.

(c) Benefits Payable Under Termination.

(i) In the event of the Executive's death during the Employment Period or a Termination due to Disability, the Executive or the Executive's beneficiaries or legal representatives shall be provided the Unconditional Entitlements (as defined below), including, but not limited to, any such Unconditional Entitlements that are or become payable under any

Company plan, policy, practice or program or any contract or agreement with the Company by reason of the Executive's death or Termination due to Disability.

(ii) In the event of the Executive's Termination for Cause or termination by the Executive other than a Termination for Good Reason, the Executive shall be provided the Unconditional Entitlements.

(iii) In the event of a Termination for Good Reason or the exercise by the Company of its Termination Rights, the Executive shall be provided the Unconditional Entitlements and, subject to the Executive signing and delivering to the Company and not revoking before the sixtieth (60^{th}) day following the Termination Date, a general release of claims in favor of the Company and certain related parties in a form reasonably satisfactory to the Company and the Executive, which the Company shall provide to the Executive within seven (7) days following the Termination Date (the ***"Release"***), the Company shall provide the Executive the Conditional Benefits. Any and all amounts payable and benefits or additional rights provided to the Executive upon a termination of the Executive's employment pursuant to this Section 3(c) (other than the Unconditional Entitlements) shall only be payable or provided if the Executive signs and delivers the Release and if the Release becomes irrevocable prior to the sixtieth (60^{th}) day following the Termination Date. In no event shall the Executive be obligated to seek other employment or take any other action by way of mitigation of the amounts payable to the Executive under any of the provisions of this Agreement, nor shall the amount of any payment hereunder be reduced by any compensation earned by the Executive as a result of employment by a subsequent employer.

(d) Unconditional Entitlements. For purposes of this Agreement, the ***"Unconditional Entitlements"*** to which the Executive may become entitled under Section 3(c) are as follows:

(i) ***Earned Amounts.*** The Earned Compensation shall be paid within thirty (30) days following the termination of the Executive's employment hereunder, or if any part thereof constitutes a bonus which is subject to or conditioned upon any performance conditions, within thirty (30) days following the determination that such conditions have been met, provided that in no event shall the bonus be paid later than ninety (90) days following the Executive's termination of employment.

(ii) ***Benefits.*** All benefits payable to the Executive under any employee benefit plans (including, without limitation any pension plans or 401(k) plans) of the Company or any of its Affiliates applicable to the Executive at the time of termination of the Executive's employment with the Company and all amounts and benefits (other than the Conditional Benefits) which are vested or which the Executive is otherwise entitled to receive under the terms of or in accordance with any plan, policy, practice or program of, or any contract or agreement with, the Company, at or subsequent to the date of the Executive's termination without regard to the performance by the Executive of further services or the resolution of a contingency, shall be paid or provided in accordance with and subject to the terms and provisions of such plans, it being understood that all such benefits shall be determined on the basis of the actual date of termination of the Executive's employment with the Company.

(iii) ***Indemnities.*** Any right which the Executive may have to claim a defense and/or indemnity for liabilities to or claims asserted by third parties in connection with the Executive's activities as an officer, director or employee of the Company shall be unaffected by the Executive's termination of employment and shall remain in effect in accordance with its terms.

(iv) ***Medical Coverage.*** The Executive shall be entitled to such continuation of health care coverage as is required under, and in accordance with, applicable law or otherwise provided in accordance with the Company's policies. The Executive shall be notified in writing of the Executive's rights to continue such coverage after the termination of the Executive's employment pursuant to this Section 3(d)(iv), provided that the Executive timely complies with the conditions to continue such coverage. The Executive understands and acknowledges that the Executive is responsible to make all payments required for any such continued health care coverage that the Executive may choose to receive.

(v) ***Business Expenses.*** The Executive shall be entitled to reimbursement, in accordance with the Company's policies regarding expense reimbursement as in effect from time to time, for all business expenses incurred by the Executive prior to the termination of the Executive's employment.

(vi) ***Stock Options/Equity Awards.*** Except to the extent additional rights are provided upon the Executive's qualifying to receive the Conditional Benefits, the Executive's rights with respect to any stock options and/or other equity awards granted to the Executive by the Company shall be governed by the terms and provisions of the Plans and Plan rules, provided that the Executive shall have ninety (90) days from the Termination Date to exercise vested options, and award agreements pursuant to which such stock options and equity awards were awarded, as in effect at the Termination Date.

(e) **Conditional Benefits.** For purposes of this Agreement, the ***"Conditional Benefits"*** to which the Executive may become entitled are as follows:

(i) ***Severance Amount.*** The Company shall pay the Executive a lump sum amount equal to the Severance Amount. Subject to Section 3(c)(iii) above, the Severance Amount shall be paid on the date that is sixty (60) days after the Termination Date (or upon the Executive's death, if earlier).

(ii) ***COBRA.*** Provided that the Executive timely elects continued health insurance coverage under the federal COBRA law, the Company will pay one-hundred percent of the cost of premiums for such health insurance continuation coverage during the twelve (12) months following the Termination Date. Notwithstanding anything to the contrary in this Agreement, the Executive's entitlement to any benefits or payments under this Section 3(e)(ii) shall cease on such date that the Executive becomes eligible to receive health insurance coverage from another employer group health plan due to Executive's employment with a future employer.

(iii) ***Stock Options.*** All of the Executive's stock options shall vest and become immediately exercisable in accordance with the applicable Original Stock Option Award

Documents, subject to the same conditions as if the Executive had remained employed under this Agreement through the end of the Employment Period. Once exercisable, all stock options shall remain exercisable until the stock option termination date. All of the Executive's stock options that were vested and exercisable at the Termination Date shall remain exercisable until the expiration date of such stock options. Except as otherwise expressly provided herein, all stock options shall continue to be subject to the Original Stock Option Award Documents.

(iv) ***Equity Awards.*** Any restricted stock or other equity award subject to vesting shall continue to vest in accordance with the terms of the Original Award Documents, regardless of the Executive's termination of employment. Except as otherwise expressly provided herein, all such restricted stock or other equity awards shall be subject to, and administered in accordance with, the Original Award Documents.

(v) ***Additional Distribution Rules.*** Notwithstanding any other payment date or schedule provided in this Agreement to the contrary, if the Executive is deemed on the Termination Date of the Executive's employment to be a "specified employee" within the meaning of that term under Section 409A of the Code and the regulations thereunder ("***Section 409A***"), then each of the following shall apply:

(A) With regard to any payment that is considered "nonqualified deferred compensation" under Section 409A and payable on account of a "separation from service" (within the meaning of Section 409A and as provided in Section 3(g) of this Agreement), such payment shall not be made prior to the date which is the earlier of (1) the expiration of the six (6)-month period measured from the date of the Executive's "separation from service," and (2) the date of the Executive's death (the ***"Delay Period"***) to the extent required under Section 409A. Upon the expiration of the Delay Period, all payments delayed pursuant to this Section 3(e)(v)(A) (whether they would have otherwise been payable in a single sum or in installments in the absence of such delay) shall be paid to the Executive in a lump sum, and all remaining payments due under this Agreement shall be paid or provided in accordance with the normal payment dates specified for them herein; and

(B) To the extent that benefits to be provided during the Delay Period are considered "nonqualified deferred compensation" under Section 409A provided on account of a "separation from service," the Executive shall pay the cost of such benefits during the Delay Period, and the Company shall reimburse the Executive, to the extent that such costs would otherwise have been paid or reimbursed by the Company or to the extent that such benefits would otherwise have been provided by the Company at no cost to the Executive, for the Company's share of the cost of such benefits upon expiration of the Delay Period, and any remaining benefits shall be paid, reimbursed or provided by the Company in accordance with the procedures specified herein.

The foregoing provisions of this Section 3(e)(v)(A) shall not apply to any payments or benefits that are excluded from the definition of "nonqualified deferred compensation" under Section 409A, including, without limitation, payments excluded from the definition of "nonqualified deferred compensation" on account of being separation pay due to an involuntary separation from service under Treasury Regulation 1.409A-1(b)(9)(iii) or on account of being a "short-term deferral" under Treasury Regulation 1.409A-1(b)(4).

(f) **Definitions.** For purposes of this Agreement, the following terms shall have the meanings ascribed to them below:

(i) ***"Affiliate"*** means any corporation, partnership, limited liability company, trust or other entity which directly, or indirectly through one or more intermediaries, controls, is under common control with, or is controlled by, the Company.

(ii) ***"Change in Control"*** means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(A) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined Voting Power of the Company's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. Notwithstanding the foregoing, a Change in Control will not be deemed to occur (1) in connection with the issuance of securities of the Company as part of a joint venture or strategic partnership to which the Company is party, (2) on account of the acquisition of securities of the Company directly from the Company, (3) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company's securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities, (4) on account of the acquisition of securities of the Company by any individual who is, on the IPO Date, either an executive officer or a member of the Board (either, an ***"IPO Investor"***) and/or any entity in which an IPO Investor has a direct or indirect interest (whether in the form of voting rights or participation in profits or capital contributions) of more than 50% (collectively, the ***"IPO Entities"***), (5) on account of the IPO Entities continuing to hold shares that come to represent more than 50% of the combined Voting Power of the Company's then outstanding securities as a result of the conversion of any class of the Company's securities into another class of the Company's securities having a different number of votes per share pursuant to the conversion provisions set forth in the Company's Amended and Restated Certificate of Incorporation, or (6) solely because the level of Ownership held by any Exchange Act Person (the ***"Subject Person"***) exceeds the designated percentage threshold of the outstanding Voting Securities as a result of a repurchase or other acquisition of Voting Securities by the Company reducing the number of shares outstanding, provided that if a Change in Control would occur (but for the operation of this sentence) as a result of the acquisition of Voting Securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional Voting Securities that, assuming the repurchase or other acquisition had not occurred, increases the percentage of the then outstanding Voting Securities Owned by the Subject Person over the designated percentage threshold, then a Change in Control will be deemed to have occurred;

(B) a merger, consolidation or similar transaction involving (directly or indirectly) the Company is consummated and, immediately after the consummation of such merger, consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (1) outstanding voting securities representing more than 50% of the combined outstanding voting power of the surviving entity in such merger, consolidation or similar transaction or (2) more than 50% of the combined outstanding voting power of the parent of the surviving entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the

outstanding voting securities of the Company immediately prior to such transaction; *provided, however*, that a merger, consolidation or similar transaction will not constitute a Change in Control under this prong of the definition if the outstanding voting securities representing more than 50% of the combined voting power of the surviving entity or its parent are owned by the IPO Entities;

(C) a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its subsidiaries is consummated, other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and its subsidiaries to an entity, more than 50% of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition; *provided, however*, that a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its subsidiaries will not constitute a Change in Control under this prong of the definition if the outstanding voting securities representing more than 50% of the combined voting power of the acquiring entity or its parent are owned by the IPO Entities; or

(D) individuals who, on the Effective Date, are members of the Board (the ***"Incumbent Board"***) cease for any reason to constitute at least a majority of the members of the Board; *provided, however*, that if the appointment or election (or nomination for election) of any new Board member was approved or recommended by a majority vote of the members of the Incumbent Board then still in office, such new member will, for purposes of this Agreement, be considered as a member of the Incumbent Board.

Notwithstanding the foregoing definition, in the case of any payment or benefit that constitutes nonqualified deferred compensation under Section 409A of the Code, if necessary in order to ensure that the Executive does not incur liability for additional tax under Section 409A of the Code, a transaction (or series of related transactions) shall constitute a Change in Control only if, in addition to satisfying the foregoing definition, such transaction (or series of related transactions) also satisfies the definition of a "change in control event" under Treas. Reg. Section 1.409A-3(i)(5).

(iii) ***"Code"*** means the Internal Revenue Code of 1986, as amended and the rules and regulations promulgated thereunder.

(iv) ***"Earned Compensation"*** means any Annual Base Salary earned, but unpaid, for services rendered to the Company on or prior to the date on which the Employment Period ends pursuant to Section 3(a) (but excluding any salary and interest accrued thereon payment of which has been deferred).

(v) ***"Exchange Act"*** means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(vi) ***"Exchange Act Person"*** means any natural person, entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that "Exchange Act Person" will not include (A) the Company or any subsidiary of the Company, (B) any employee benefit plan of the Company or any subsidiary of the Company or any trustee

or other fiduciary holding securities under an employee benefit plan of the Company or any subsidiary of the Company, (C) an underwriter temporarily holding securities pursuant to a registered public offering of such securities, (D) an entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of stock of the Company, or (E) any natural person, entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the IPO Date, is the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities.

(vii) ***"IPO Date"*** means the date of the underwriting agreement between the Company and the underwriter(s) managing the initial public offering of the Common Stock, pursuant to which the Common Stock is priced for the initial public offering.

(viii) ***"Non-Compete Amount"*** means, if the Executive is an officer or employee of the Company, if a Change in Control occurs and if during the 24 month period following the Change in Control the Executive is terminated without Cause (other than because of the Executive's death or

Disability) or the Executive terminates the Executive's employment for Good Reason, the amount mutually agreed upon by the Company and the Executive in exchange for the Executive's covenant not to engage in or otherwise compete against the business engaged in by the Company, directly or indirectly, whether as an employee, consultant, independent contractor, partner, shareholder, investor or in any other capacity, for a one-year period following termination of the Executive's employment with the Company.

(ix) ***"Original Stock Option Award Documents"*** means, with respect to any stock option, the terms and provisions of the award agreement and Plan pursuant to which such stock option was granted, each as in effect on the Termination Date.

(x) ***"Original Award Documents"*** means, with respect to any restricted stock or other equity award, the terms and provisions of the award agreement related to and the Plan governing such restricted stock or other equity award, each as in effect on the Termination Date.

(xi) ***"Own," "Owned," "Owner," "Ownership"*** means a person or entity will be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(xii) ***"Person"*** shall have the same meaning as ascribed to such term in Section 3(a)(9) of the Exchange Act, as supplemented by Section 13(d)(3) of the Exchange Act, and shall include any group (within the meaning of Rule 13d-5(b) under the Exchange Act); provided that Person shall not include (A) the Company or any of its Affiliates, or (B) any employee benefit plan (including an employee stock ownership plan or employee stock purchase plan) sponsored by the Company or any of its Affiliates.

(xiii) ***"Severance Amount"*** means an amount equal to [ ] times the sum of (A) the Annual Base Salary as in effect as of the Termination Date less the Non-Compete

Amount (if applicable) and (B) an amount equal to a prorated portion of the Executive's cash bonus for the year in which the Termination Date occurs, with such prorated amount determined by multiplying the Executive's cash bonus for the year in which the Termination Date occurs by a fraction, the numerator of which is the number of full months during such year in which the Executive was employed and the denominator of which is twelve (12).

(xiv) ***"Termination for Cause"*** means a termination of the Executive's employment by the Company due to (A) an intentional act or acts of dishonesty undertaken by the Executive and intended to result in substantial gain or personal enrichment to the Executive at the expense of the Company, (B) unlawful conduct or gross misconduct that is willful and deliberate on the Executive's part and that, in either event, is materially injurious to the Company, (C) the conviction of the Executive of, or the Executive's entry of a no contest or *nolo contendre* plea to, a felony, (D) material breach by the Executive of the Executive's fiduciary obligations as an officer or director of the Company, (E) a persistent failure by the Executive to perform the duties and responsibilities of the Executive's employment hereunder, which failure is willful and deliberate on the Executive's part and is not remedied by the Executive within 30 days after the Executive's receipt of written notice from the Company of such failure, or (F) material breach of any terms and conditions of this Agreement by Executive, which breach has not been cured by the Executive within ten days after written notice thereof to Executive from the Company. For the purposes of this Section 3(f)(xiv), no act or failure to act on the Executive's part shall be considered "dishonest," "willful" or "deliberate" unless intentionally done or omitted to be done by the Executive in bad faith and without reasonable belief that the Executive's action or omission was in the best interests of the Company. 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 Executive in good faith and in the best interests of the Company.

(xv) ***"Termination Date"*** means the earlier to occur of (A) the date the Company specifies in writing to the Executive in connection with the exercise of its Termination Right or (B) the date the Executive specifies in writing to the Company in connection with any notice to effect a Termination for Good Reason. Notwithstanding the foregoing, a termination of employment will not be deemed to have occurred for purposes of any provision of this Agreement providing for the payment of any amounts or benefits subject to Section 409A upon or following a termination of employment unless such termination is also a "separation from service" (within the meaning of Section 409A), and notwithstanding anything contained herein to the contrary, the date on which such separation from service takes place will be the Termination Date.

(xvi) ***"Termination due to Disability"*** means a termination of the Executive's employment by the Company because the Executive has been incapable, after reasonable accommodation, of substantially fulfilling the positions, duties, responsibilities and obligations set forth in this Agreement because of physical, mental or emotional incapacity resulting from injury, sickness or disease for a period of (A) six (6) consecutive months or (B) an aggregate of nine (9) months (whether or not consecutive) in any twelve (12) month period. Any question as to the existence, extent or potentiality of the Executive's disability shall be determined by a qualified physician selected by the Company with the consent of the Executive, which consent shall not be unreasonably withheld. The Executive or the Executive's legal

representatives or any adult member of the Executive's immediate family shall have the right to present to such physician such information and arguments as to the Executive's disability as he, she or they deem appropriate, including the opinion of the Executive's personal physician.

(xvii) ***"Termination for Good Reason"*** means a termination of the Executive's employment by the Executive within thirty (30) days of the Company's failure to cure, in accordance with the procedures set forth below, any of the following events: (A) a reduction in Executive's Annual Base Salary as in effect immediately prior to such reduction by more than ten percent (10%) without Executive's written consent, unless such reduction is made pursuant to an across the board reduction applicable to all senior executives of the Company; (B) the removal of the Executive by the Company from the position of [ ] of the Company; (C) a material reduction in the Executive's duties and responsibilities as in effect immediately prior to such reduction; or (D) a material breach of any material provision of this Agreement by the Company to which the Executive shall have delivered a written notice to the Board within forty-five (45) days of the Executive's having actual knowledge of the occurrence of one of such events stating that the Executive intends to terminate the Executive's employment 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 twenty-one (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 Executive shall have consented in writing to the occurrence of the event giving rise to the claim of Termination for Good Reason.

(xviii) ***"Termination Right"*** means the right of the Company, in its sole, absolute and unfettered discretion, to terminate the Executive's employment under this Agreement for any reason or no reason whatsoever. For the avoidance of doubt, any Termination for Cause effected by the Company shall not constitute the exercise of its Termination Right.

(xix) ***"Voting Power"*** means such number of Voting Securities as shall enable the holders thereof to cast all the votes which could be cast in an annual election of directors of a company.

(xx) ***"Voting Securities"*** means all securities entitling the holders thereof to vote in an annual election of directors of a company.

(g) Conflict with Plans. As permitted under the terms of the applicable Plans, the Company and the Executive agree that the definitions of Termination for Cause or Termination for Good Reason set forth in this Section 3 shall apply in place of any similar definition or comparable concept applicable under either of the Plans (or any similar definition in any successor plan).

(h) Section 409A. It is intended that payments and benefits under this Agreement either be excluded from or comply with the requirements of Section 409A and the guidance issued thereunder and, accordingly, to the maximum extent permitted, this Agreement shall be interpreted consistent with such intent. In the event that any provision of this Agreement is subject to but fails to comply with Section 409A, the Company may revise the terms of the provision to correct such noncompliance to the extent permitted under any guidance, procedure

or other method promulgated by the Internal Revenue Service now or in the future or otherwise available that provides for such correction as a means to avoid or mitigate any taxes, interest or penalties that would otherwise be incurred by the Executive on account of such noncompliance. Provided, however, that in no event whatsoever shall the Company be liable for any additional tax, interest or penalty imposed upon or other detriment suffered by the Executive under Section 409A or damages for failing to comply with Section 409A. Solely for purposes of determining the time and form of payments due the Executive under this Agreement (including any payments due under Sections 3(c) or 5) or otherwise in connection with the Executive's termination of employment with the Company, the Executive shall not be deemed to have incurred a termination of employment unless and until the Executive shall incur a "separation from service" within the meaning of Section 409A. The parties agree, as permitted in accordance with the final regulations thereunder, a "separation from service" shall occur when the Executive and the Company reasonably anticipate that the Executive's level of bona fide services for the Company (whether as an employee or an independent contractor) will permanently decrease to no more than forty (40) percent of the average level of bona fide services performed by the Executive for the Company over the immediately preceding thirty-six (36) months. The determination of whether and when a separation from service has occurred shall be made in accordance with this subparagraph and in a manner consistent with Treasury Regulation Section 1.409A-1(h). All reimbursements and in-kind benefits provided under this Agreement shall be made or provided in accordance with the requirements of Section 409A to the extent that such reimbursements or in-kind benefits are subject to Section 409A, including, where applicable, the requirements that (i) any reimbursement is for expenses incurred during the Executive's lifetime (or during a shorter period of time specified in this Agreement), (ii) the amount of expenses eligible for reimbursement (and the in-kind benefits to be provided) during a calendar year may not affect the expenses eligible for reimbursement (and the in-kind benefits to be provided) in any other calendar year, (iii) the reimbursement of an eligible expense will be made on or before the last day of the calendar year following the year in which the expense is incurred, and (iv) the right to reimbursement (or in-kind benefits) is not subject to set off or liquidation or exchange for any other benefit. For purposes of Section 409A, the Executive's right to any installment payments under this Agreement shall be treated as a right to receive a series of separate and distinct payments. Whenever a payment under this Agreement specifies a payment period with reference to a number of days (e.g., "payment shall be made within ninety (90) days following the date of termination"), the actual date of payment within the specified period shall be within the sole discretion of the Company.

4. EXECUTIVE REMEDY. The Executive shall be under no obligation to seek other employment or other engagement of the Executive's services. The Executive acknowledges and agrees that the payment and rights provided under Section 3 are fair and reasonable, and are the Executive's sole and exclusive remedy, in lieu of all other remedies at law or in equity, for termination of the Executive's employment by the Company upon exercise of its Termination Right pursuant to this Agreement or upon a Termination for Good Reason.

5. ADDITIONAL PAYMENTS FOLLOWING A CHANGE IN CONTROL.

(a) If, during the Employment Period and within two (2) years after a Change in Control, the Company shall terminate the Executive's employment other than due to the

Executive's death, a Termination for Cause, a Termination due to Disability or if the Executive shall effect a Termination for Good Reason:

(i) the Company shall pay to the Executive, in a lump sum in cash within thirty (30) days after the Termination Date, the aggregate of the following amounts:

(A) the Unconditional Entitlements;

(B) the amount equal to the product of [ ] times the sum of (y) the Annual Base Salary, and (z) the greater of the target bonus for the then current fiscal year under the Plans or any successor annual bonus plan and the average Annual Bonus paid to or for the benefit of the Executive for the prior three (3) full years (or any shorter period during which the Executive has been employed by the Company), and

(ii) the Company shall provide the Executive the Conditional Benefits minus the Severance Amount.

(b) If any payment or benefit (including payments and benefits pursuant to this Agreement) the Executive would receive in connection with a Change in Control from the Company or otherwise (the ***"Payment"***) would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this paragraph, be subject to the excise tax imposed by Section 4999 of the Code (the ***"Excise Tax"***), then the Company shall cause to be determined, before any amounts of the Payment are paid to the Executive, which of the following two alternative forms of payment shall be paid to the Executive: (A) payment in full of the entire amount of the Payment (a ***"Full Payment"***), or (B) payment of only a part of the Payment so that the Executive receives the largest payment possible without the imposition of the Excise Tax (a ***"Reduced Payment"***). A Full Payment shall be made in the event that the amount received by the Executive on a net after-tax basis is greater than what would be received by the Executive on a net after-tax basis if the Reduced Payment were made, otherwise a Reduced Payment shall be made. If a Reduced Payment is made, (i) the Payment shall be paid only to the extent permitted under the Reduced Payment alternative, and the Executive shall have no rights to any additional payments and/or benefits constituting the Payment, and (ii) reduction in payments and/or benefits shall occur in the following order: (A) reduction of cash payments; (B) cancellation of accelerated vesting of equity awards other than stock

options; (C) cancellation of accelerated vesting of stock options; and (D) reduction of other benefits paid to Executive. In the event that acceleration of compensation from the Executive's equity awards is to be reduced, such acceleration of vesting shall be canceled in the reverse order of the date of grant.

(c) The independent registered public accounting firm engaged by the Company for general audit purposes as of the day prior to the effective date of the Change in Control, or a nationally recognized law firm, shall make all determinations required to be made under this Section 5. If the independent registered public accounting firm or nationally recognized law firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting the Change in Control, the Company shall appoint a nationally recognized law firm or independent registered public accounting firm or law firm to make the determinations required hereunder. The Company shall bear all expenses with respect

to the determinations by such independent registered public accounting firm required to be made hereunder.

(d) The independent registered public accounting firm or law firm engaged to make the determinations hereunder shall provide its calculations, together with detailed supporting documentation, to the Company and the Executive within fifteen (15) calendar days after the date on which Executive's right to a Payment is triggered (if requested at that time by the Company or Executive) or such other time as requested by the Company or Executive. Any good faith determinations of the accounting firm or law firm made hereunder shall be final, binding and conclusive upon the Company and Executive.

(e) The Company's obligation to make the payments provided for in this Agreement and otherwise to perform its obligations hereunder shall not be affected by any set-off, counterclaim, recoupment, defense or other claim, right or action which the Company may have against the Executive or others. In no event shall the Executive be obligated to seek other employment or take any other action by way of mitigation of the amounts payable to the Executive under any of the provisions of this Agreement and such amounts shall not be reduced whether or not the Executive obtains other employment. The Company agrees to pay as incurred, to the full extent permitted by law, all legal fees and expenses which the Executive may reasonably incur as a result of any contest (regardless of the outcome thereof) by the Company, the Executive or others of the validity or enforceability of, or liability under, any provision of this Agreement or any guarantee of performance thereof (including as a result of any contest by the Executive about the amount of any payment pursuant to this Agreement), plus, in each case, interest on any delayed payment at the applicable Federal rate provided for in Section 7872(f)(2)(A) of the Code.

6. CONFIDENTIALITY.

(a) Confidentiality. Without the prior written consent of the Company, except (y) as reasonably necessary in the course of carrying out the Executive's duties hereunder or (z) to the extent required by an order of a court having competent jurisdiction or under subpoena from an appropriate government agency, the Executive shall not disclose any Confidential Information unless such Confidential Information has been previously disclosed to the public by the Company or has otherwise become available to the public (other than by reason of the Executive's breach of this Section 6(a)). The term ***"Confidential Information"*** shall include, but shall not be limited to: (i) the identities of the existing and prospective customers or clients of the Company and its Affiliates, including names, addresses, credit status, and pricing levels; (ii) the buying and selling habits and customs of existing and prospective customers or clients of the Company and its Affiliates; (iii) financial information about the Company and its Affiliates; (iv) product and systems specifications, concepts for new or improved products and other product or systems data; (v) the identities of, and special skills possessed by, employees of the Company and its Affiliates; (vi) the identities of and pricing information about the suppliers and vendors of the Company and its Affiliates; (vii) training programs developed by the Company or its Affiliates; (viii) pricing studies, information and analyses; (ix) current and prospective products and inventories; (x) financial models, business projections and market studies; (xi) the financial results and business conditions of the Company and its Affiliates; (xii) business plans and strategies of the Company and its Affiliates; (xiii) special processes,

procedures, and services of suppliers and vendors of the Company and its Affiliates; and (xiv) computer programs and software developed by the Company or its Affiliates.

(b) Company Property. Promptly following the Executive's termination of employment, the Executive shall return to the Company all property of the Company, and all copies thereof in the Executive's possession or under the Executive's control, except that the Executive may retain the Executive's personal notes, diaries, rolodexes, mobile devices, calendars and electronic calendars, and correspondence of a personal nature.

(c) Nonsolicitation. The Executive agrees that, while the Executive is employed by the Company and during the one-year period following the Executive's termination of employment with the Company (the ***"Restricted Period"***), the Executive shall not directly or indirectly, (i) solicit any individual who is, on the Termination Date (or was, during the six-month period prior to the Termination Date), employed by the Company or its Affiliates to terminate or refrain from renewing or extending such employment or to become employed by or become a consultant to any other individual or entity other than the Company or its Affiliates or (ii) induce or attempt to induce any customer or investor (in each case, whether former, current or prospective), supplier, licensee or other business relation of the Company or any of its Affiliates to cease doing business with the Company or such Affiliate, or in any way interfere with the relationship between any such customer, investor, supplier, licensee or business relation, on the one hand, and the Company or any of its Affiliates, on the other hand. Any payments owed to Executive at time of separation as described herein shall be contingent upon Executive's compliance with the post-employment nonsolicitation provisions.

(d) Noncompetition. The Executive agrees that, during the Restricted Period, the Executive shall not be employed by, serve as a consultant to, or otherwise assist or directly or indirectly provide services to a Competitor (as defined below) if (i) the services that the Executive is to provide to the Competitor are the same as, or substantially similar to, any of the services that the Executive provided to the Company or the Affiliates, and such services are to be provided with respect to any location in which the Company or an Affiliate had material operations during the twelve (12) month period prior to the Termination Date, or with respect to any location in which the Company or an Affiliate had devoted material resources to establishing operations during the twelve (12) month period prior to the Termination Date; or (ii) the trade secrets, Confidential Information, or proprietary information (including, without limitation, confidential or proprietary methods) of the Company and the Affiliates to which the Executive had access could reasonably be expected to benefit the Competitor if the Competitor were to obtain access to such secrets or information. For purposes of this paragraph, services provided by others shall be deemed to have been provided by the Executive to Competitor if the Executive had material supervisory responsibilities with respect to the provision of such services. The term ***"Competitor"*** means any enterprise (including a person, firm, business, division, or other unit, whether or not incorporated) during any period in which a material portion of its business is (and during any period in which it intends to enter into business activities that would be) materially competitive in any way with any business in which the Company or any of the Affiliates were engaged during the twelve (12) month period prior to the Executive's Termination Date (including,

without limitation, any business if the Company devoted material resources to entering in such business during such twelve (12) month period), but for purposes of clause (c) above, the term "Competitor " shall be limited to those businesses to which the

Executive devoted more than an insignificant amount of time while employed by the Company. Notwithstanding the foregoing, the term ***"Competitor"*** shall not include a business of a Competitor if such business would not, as a stand-alone enterprise, constitute a "Competitor" under the foregoing definition, provided that Executive does not render any services to, or otherwise assist the portion of the business that competes with the Company and its Affiliates. For the avoidance of doubt, the Company's and Affiliates' businesses shall include, without limitation, the lines of business set forth in the Company's annual report on Form 10-K, provided that nothing in this sentence shall be construed to limit the type of business of the Company and the Affiliates or the restrictions with respect to such businesses in the future. Any payments owed to Executive at time of separation as described herein shall be contingent upon Executive's compliance with the post-employment noncompetition provisions.

(e) Equitable Remedies. The Executive acknowledges that the Company would be irreparably injured by a violation of Section 6 and the Executive agrees that the Company, in addition to any other remedies available to it for such breach or threatened breach, on meeting the standards required by law, shall be entitled to a preliminary injunction, temporary restraining order, or other equivalent relief, restraining the Executive from any actual or threatened breach of Section 6. If a bond is required to be posted in order for the Company to secure an injunction or other equitable remedy, the parties agree that said bond need not be more than a nominal sum.

(f) Employee Proprietary Information and Inventions Assignment. The terms of that certain Employee Proprietary Information and Inventions Assignment Agreement between the Executive and the Company dated [ ], 201[ ] are hereby incorporated by reference (the ***"Invention Assignment Agreement"***). To the extent that there are any conflicts between the terms and conditions of the Invention Assignment Agreement and this Agreement, the terms and conditions of this Agreement shall control. All non-conflicting terms of the Invention Assignment Agreement are hereby expressly preserved.

(g) Severability; Blue Pencil. The Executive acknowledges and agrees that the Executive has had the opportunity to seek advice of counsel in connection with this Agreement and the restrictive covenants contained herein are reasonable in geographical scope temporal duration and in all other respects. If it is determined that any provision of this Section 6 is invalid or unenforceable, the remainder of the provisions of this Section 6 shall not thereby be affected and shall be given full effect, without regard to the invalid portions. If any court or other decision-maker of competent jurisdiction determines that any of the covenants in this Section 6 is unenforceable because of the duration or geographic scope, of such provision, then after such determination becomes final and unappealable, the duration or scope of such provision, as the case may be, shall be reduced so that such provision becomes enforceable, and in its reduced form, such provision shall be enforced.

7. SUCCESSORS.

(a) This Agreement is personal to the Executive and without the prior written consent of the Company shall not be assignable by the Executive otherwise than by will or the laws of descent and distribution. This Agreement shall inure to the benefit of and be enforceable by the Executive's legal representatives.

(b) This Agreement shall inure to the benefit of and be binding upon the Company and its successors and assigns and any party acting in the form of a receiver or trustee capacity.

(c) The Company will require any successor (whether direct or indirect, by purchase, merger, consolidation or otherwise) to all or substantially all of the business and/or assets of the Company to assume expressly and agree to perform this Agreement in the same manner and to the same extent that the Company would be required to perform it if no such succession had taken place. As used in this Agreement, "Company" shall mean the Company as hereinbefore defined and any successor to its business and/or assets as aforesaid which assumes and agrees to perform this Agreement by operation of law, or otherwise.

8. MISCELLANEOUS.

(a) This Agreement shall be construed, and the rights and obligations of the parties hereunder determined, in accordance with the substantive laws of the State of Michigan, without regard to its conflict-of-laws principles. For the purposes of any suit, action or proceeding based upon, arising out of or relating to this Agreement or the negotiation, execution or performance hereof, the parties hereby expressly submit to the jurisdiction of all federal and state courts sitting within the confines of the Federal Eastern District of Michigan (the ***"Venue Area"***) and consent that any order, process, notice of motion or other application to or by any such court or a judge thereof may be served within or without such court's jurisdiction by registered mail or by personal service in accordance with Section 8(b). The parties agree that such courts shall have the exclusive jurisdiction over any such suit, action or proceeding commenced by either or both of said parties. Each party hereby irrevocably waives any objection that it may now or hereafter have to the laying of venue of any suit, action or proceeding based upon, arising out of or relating to this Agreement or the negotiation, execution or performance hereof, brought in any federal or state court sitting within the confines of the Venue Area and hereby further irrevocably waives any claim that any such suit, action or proceeding brought in any such court has been brought in an inconvenient forum. The captions of this Agreement are not part of the provisions hereof and shall have no force or effect. This Agreement may not be amended or modified otherwise than by a written agreement executed by the parties hereto or their respective successors and legal representatives.

(b) All notices and other communications hereunder shall be in writing and shall be given by hand delivery to the other party or by registered or certified mail, return receipt requested, postage prepaid, addressed as follows:

If to the Executive:	At Executive's address as it appears in the Company's books and records or at such other

place as Executive shall have designated by notice as herein provided to the Company

If to the Company:

Gemphire Therapeutics Inc.
Attn: Chairman of the Board
Gemphire Therapeutics Inc.
43334 Seven Mile Road, Suite 1000
Northville, Michigan 48167
Telephone: (248) 681-9815
Fax: (734) 864-5765

with a copy to:

Honigman Miller Schwartz and Cohn LLP
350 East Michigan Avenue, Suite 300
Kalamazoo, Michigan 49007
Attention: Phillip D. Torrence, Esq.
Telephone: (269) 337-7702
Fax: (269) 337-7703
Email: ptorrence@honigman.com

or to such other address as either party shall have furnished to the other in writing in accordance herewith. Notice and communications shall be effective when actually received by the addressee.

(c) The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement.

(d) The Company hereby agrees to indemnify the Executive and hold the Executive harmless to the extent provided under Certificate of Incorporation of the Company (as amended), the By-Laws of the Company (as amended) and the Indemnification Agreement entered into by and between the Company and the Executive against and in respect of any and all actions, suits, proceedings, claims, demands, judgments, costs, expenses (including reasonable attorney's fees), losses, and damages resulting from the Executive's good faith performance of the Executive's duties and obligations with the Company. This obligation shall survive the termination of the Executive's employment with the Company.

(e) From and after the Effective Date, the Company shall cover the Executive under directors' and officers' liability insurance both during and, while potential liability exists, after the Employment Period in the same amount and to the same extent as the Company covers its other executive officers and directors.

(f) The Company may withhold from any amounts payable under this Agreement such Federal, state, local or foreign taxes as shall be required to be withheld pursuant to any applicable law or regulation.

(g) The Executive's or the Company's failure to insist upon strict compliance with any provision of this Agreement or the failure to assert any right the Executive or the Company may have hereunder, including, without limitation, the right of the executive to effect a

Termination for Good Reason shall not be deemed to be a waiver of such provision of right or any other provision or right of this Agreement.

(h) This Agreement, the Invention Assignment Agreement, and all agreements, documents, instruments, schedules, exhibits or certificates prepared in connection herewith, represent the entire understanding and agreement between the parties with respect to the subject matter hereof, supersede all prior agreements or negotiations between such parties, including the Prior Agreement, and may be amended, supplemented or changed only by an agreement in writing which makes specific reference to this Agreement or the agreement or document delivered pursuant hereto, as the case may be, and which is signed by the party against whom enforcement of any such amendment, supplement or modification is sought.

SIGNATURES ON THE FOLLOWING PAGE

IN WITNESS WHEREOF, the Company and the Executive have executed this Agreement as of the date first above written.

THE EXECUTIVE:

_____
[INSERT NAME]

THE COMPANY:

GEMPHIRE THERAPEUTICS INC.

By: _____
Name: _____
Title: _____

Exhibit 10.9

LICENSE AGREEMENT

THIS LICENSE AGREEMENT ("**Agreement**") is made effective as of the 16th day of April, 2011 (the "Effective Date"), by and between Michigan Life Therapeutics, LLC a corporation organized and existing under the laws of Michigan with offices at 2020 Shadford Road, Ann Arbor, MI 48104 ("**LICENSEE**") and Pfizer Inc., a corporation organized and existing under the laws of Delaware with offices at 235 East 42nd Street, New York, NY 10017 ("**PFIZER**"). LICENSEE and PFIZER may, from time-to-time, be individually referred to as a "Party" and collectively referred to as the "Parties".

RECITALS

WHEREAS, PFIZER owns certain patents hereinafter referred and defined as License Patents; and

WHEREAS, LICENSEE wishes to obtain, and PFIZER wishes to grant, certain licenses relating to these License Patents on the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the mutual agreements and covenants set forth herein and other good and valuable consideration, the receipt and sufficiency of which the Parties hereby acknowledge, the Parties, intending to be legally bound hereby, agree to the foregoing and as follows:

1. **DEFINITIONS**

1.1 "**Affiliate**" means, with respect to a Party, any Person that controls, is controlled by, or is under common control with that Party. For the purpose of this definition, "**control**" shall refer to: (a) the possession, directly or indirectly, of the power to direct the management or policies of an entity, whether through the ownership of voting securities, by contract or otherwise, or (b) the ownership, directly or indirectly, of fifty percent (50%) or more of the voting securities of such entity.

1.2 "**Applicable Laws**" means all applicable laws, statutes, rules, regulations and guidelines, including, without limitation, all good manufacturing practices and all applicable standards or guidelines promulgated by the appropriate Regulatory Authority.

1.3 "**Business Day**" means any day other than a Saturday, a Sunday or a day on which commercial banks located in New York, New York are authorized or required by law to remain closed.

1.4 "**Calendar Quarter**" means the three (3) month period commencing as of the Effective Date and each successive three (3) month period thereafter.

* Information redacted pursuant to a confidential treatment request by Gemphire Therapeutics Inc. under 5 U.S.C. §552(b)(4) and Rule 406 under the Securities Act of 1933 and submitted separately with the Securities and Exchange Commission.

1.5 "**Calendar Year**" means the twelve (12) month period commencing as of the Effective Date and each successive twelve (12) month period thereafter.

1.6 "**Commercialize**" or "**Commercialization**" means to manufacture for sale, market, promote, distribute, and sell.

1.7 "**Commercially Reasonable Efforts**" means: (a) with respect to the further Development of the Product, the efforts and expenditures required to obtain Regulatory Approvals and/or securing patents, that is comparable to any of LICENSEE's products that are at a similar stage of development, and (b) with respect to Commercialization of the Product, efforts and expenditures that are comparable to those used for any of LICENSEE's products that are of similar commercial potential.

1.8 "**Common Stock**" means shares of the common stock of the LICENSEE, par value $.01 per share.

1.9 "**Control**" or "**Controlled**" means, with respect to any Intellectual Property Rights, the legal authority or right (whether by ownership, license or otherwise) of a Party to grant a license or a Permitted sublicense of or under such Intellectual Property Rights to the other Party without breaching the terms of any agreement with a Third Party.

1.10 "**Convertible Securities**" means any bonds, debentures, notes or other evidences of indebtedness, and any warrants, shares or any other securities convertible into, exercisable for, or exchangeable for Common stock, but excluding Options.

1.11 "**Develop**" or "**Development**" means to conduct any and all research and development activities necessary to obtain Regulatory Approval.

1.12 "**FDA**" means the United States Food and Drug Administration, or a successor federal agency thereto.

1.13 "**First Commercial Sale**" means the first sale for use or consumption by the general public of the Product following receipt of Regulatory Approval for such Product from the US Federal Drug Authority or relevant foreign counterpart in the Territory.

1.14 "**Fully Diluted Shares**" means the number of shares of the Common Stock that are or would be issued and outstanding immediately following the issuance of all Subsequent Financing Securities *plus* all shares of Common Stock issuable upon conversion of all such Subsequent Financing Securities *plus* all shares of Common Stock that are issuable upon exercise or conversion of all other Options or Convertible Securities outstanding immediately following the issuance of all such Subsequent Financing Securities.

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1.15 "**GAAP**" means the generally accepted accounting principles set forth in the opinions and pronouncements of the Accounting Principles Board of the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board.

1.16 "**IND**" means: (a) an investigational new drug application filed with the FDA for authorization for the investigation of the Product, and (b) any of its foreign equivalents as filed with the applicable Regulatory Authorities in the relevant regulatory jurisdictions in the Territory, as applicable.

1.17 "**Intellectual Property Rights**" means all trade secrets, copyrights, patents and other patent rights, Trademarks, moral rights, know-how and any and all other intellectual property or proprietary rights now known or hereafter recognized in any jurisdiction.

1.18 "**License Patents**" means any patents secured as listed in Schedule A and, the rights to use the Patents on the terms contained herein.

1.19 "**Milestone**" means each milestone as set forth in Section 5.1.2.

1.20 "**NDA/BLA**" means: (a) a new drug application or a new biologic license application filed with the FDA for authorization for marketing the Product, and (b) any of its foreign equivalents as filed with the applicable Regulatory Authorities in other countries or regulatory jurisdictions in the Territory, as applicable.

1.21 "**Net Sales**" means the consolidated gross amount of Licensed products invoiced by Licensee or any Affiliate, less sales returns, and allowances actually paid, granted or accrued, including trade, quantity and cash discounts, chargebacks, rebates, and customary trade discounts actually taken, outbound freight, value added tax, sales or use taxes, and custom or excise duties. Net sales shall be determined from the consolidated books and records of the Licensee and/or Affiliate of the Licensee, as the case maybe, and as maintained in accordance with the US. GAAP consistently applied.

The following principles shall apply in the calculation of Net Sales:

1.21.1 In the case of any sale of Product which is not invoiced or is delivered before invoice, Net Sales shall be calculated at the time of shipment or when the Product is paid for, if paid for before shipment or invoice.

1.21.2 In the case of any sale or other disposal of Product for non-cash consideration, Net Sales shall be calculated as the fair market price of the Product in the country of sale or disposal.

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1.21.3 Net Sales shall be reduced by [*] for sales of any Combination Products. For purposes of this Subsection 1.20.3, "Combination Products" means any pharmaceutical product containing: (a) the Product and (b) one or more other therapeutically active ingredient(s).

1.21.4 Unless otherwise specified herein, Net Sales shall be calculated in accordance with GAAP generally and consistently applied.

1.22 "**Options**" means rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

1.23 "**Patent Rights**" means: (a) the patents and patent applications listed in Schedule A, (b) all divisionals, continuations, and continuations-in-part that claim priority to the patents or patent applications described in subsection (a), (c) all patents that have issued or in the future issue from any of the foregoing patent applications in subsections (a) and (b), including utility, model and design patents and certificates of invention, (d) any reissues, renewals, extensions or additions of any of the foregoing, and (e) any foreign equivalents of any of the foregoing.

1.24 "**Person**" means an individual, corporation, partnership, limited liability company, trust, business trust, association, joint stock company, joint venture, pool, syndicate, sole proprietorship, unincorporated organization, governmental authority or any other form of entity not specifically listed herein.

1.25 "**Permitted sub licensee(s)**" means any third party, who is not an Affiliate of the Licensee, and in respect of whom, the Licensee has received prior written consent from Pfizer to assign any of its rights in the License Patents.

1.26 "**Product**" means Gemcabene calcium and further identified by CI-1027, PF-01430506, and/or PD-072953 ("Compound") along with certain intellectual property, information, and other related assets.

1.27 "**Regulatory Approval**" means, with respect to the Product in any country or jurisdiction, any approval (including where required, pricing and reimbursement approvals), registration, license or authorization that is required by the applicable Regulatory Authority to market and sell the Product in such country or jurisdiction.

1.28 "**Regulatory Authority**" means any governmental agency or authority responsible for granting Regulatory Approvals for the Product in the Territory.

1.29 "**Regulatory Filings**" means, with respect to the Product, any submission to a Regulatory Authority of any appropriate regulatory application, including, without limitation, any IND, NDA/BLA, any submission to a regulatory advisory

board, any marketing authorization application, and any supplement or amendment thereto.

1.30 "**Royalty Term**" means, with respect to the Product in each country in the Territory, the period commencing on the Effective Date and expiring upon the later of: the expiration or abandonment of the last Valid Claim of the Patent Rights, including any patent term extensions or supplemental protection certificates, in such country in the Territory.

1.31 "**Subsequent Financing Securities**" means shares of the LICENSEE'S Series A Preferred Stock or shares of any other convertible preferred equity security hereafter issued and sold by the LICENSEE (or to be issued and sold by the LICENSEE contingent upon the occurrence of any milestone or similar event, or upon the satisfaction of one or more conditions) in a bona fide, arm's length equity financing transaction with an unrelated third party.

1.32 "**Territory**" means the entire world.

1.33 "**Third Party**" means any Person other than a Party or an Affiliate of a Party.

1.34 "**Trademarks**" has the meaning as set forth in Section 13.6.5.

1.35 "**Use**" means to make, have made, use, sell, offer for sale, and import.

1.36 "**Valid Claim**" means either: (a) a claim of an issued and unexpired patent included within the Patent Rights, which has not been permanently revoked or declared unenforceable or invalid by an unreserved and unappealable or unreversed and unappealed decision of a court or other appropriate body of competent jurisdiction, or (b) a claim of a pending patent application included within the Patent Rights, which claim was filed in good faith and has not been abandoned or finally disallowed without the possibility of appeal or refiling of such application.

2. LICENSE GRANT

2.1 **License Grant of Patent Rights**.

Subject to the terms and conditions of this Agreement, PFIZER hereby grants to LICENSEE an exclusive, royalty-bearing right and license under the Patents Rights to Use the Product within the Territory Subject to the terms and conditions of this Agreement, PFIZER hereby grants to LICENSEE a royalty-bearing right and license to use the License Patents for the purpose of the Development and Commercialization of the Product in the within the Territory.

2.2 **Retained Rights**. LICENSEE acknowledges and agrees that PFIZER retains the right to make, have made and use the Product for any other purpose.

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2.3 **Residuals**. PFIZER may use for any purpose the Residuals resulting from access to or work with the Product and Know-How. As used herein, "Residuals" means information in non-tangible form which may be retained by persons who have had access to the Product and Know-How, including ideas, concepts, know-how or techniques contained therein.

2.4 **No Additional Rights**. Nothing in this Agreement shall be construed to confer any rights upon LICENSEE by implication, estoppel, or otherwise as to any technology or Intellectual Property Rights of PFIZER or its Affiliates other than the License Patents, regardless of whether such technology or Intellectual Property Rights shall be dominant or subordinate to any License Patents.

3. TRANSFER OF DOCUMENTATION

3.1 PFIZER agrees to maintain its currently existing records relating to the license Rights and Products, including regulatory records, for a period of six (6) months from the Effective Date. In the event that the LICENSEE wishes to access these, PFIZER will use reasonable efforts to: (a) make available to LICENSEE at the licensee's costs, currently available records which are with it on the Effective Date. The LICENSEE understands that the costs for such retrieval will be approximately [*] per day.

Notwithstanding the foregoing, in no event shall PFIZER provide: (a) data or records that include technology or products other than the Product, or (b) laboratory notebooks, PFIZER internal team meeting minutes, communications, personal notes or internal correspondence that are related to the Product, provided that PFIZER will provide to LICENSEE relevant summary information that pertains to subsections (a) and (b) to the extent such information: (x) exists as of the Effective Date, (y) is retained by PFIZER and (z) is reasonably retrievable by PFIZER.

4. DEVELOPMENT AND COMMERCIALIZATION

4.1 **Development**. LICENSEE shall itself, or through its Affiliates, use Commercially Reasonable Efforts to Develop the Product in the Territory. In connection with its efforts to develop the Product, LICENSEE shall bear all responsibility and expense for filing Regulatory Filings in LICENSEE's name and obtaining Regulatory Approval for the Product. LICENSEE will undertake such activities at its sole expense and shall provide to PFIZER reports regarding LICENSEE's progress within thirty (30) days following the expiration of each Calendar Year.

4.2 **Commercialization**. LICENSEE shall itself, or through its Affiliates or Permitted sub licensees, use Commercially Reasonable Efforts to Commercialize the Product in the Territory. LICENSEE will undertake such activities at its sole

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expense. It is expressly clarified that the Licensee shall be solely liable to meet or execute any and all compliances related to the manufacture, distribution or sale of the Licensed Products

4.3 **Payment Terms**.

4.3.1 In consideration of the licenses and rights granted to LICENSEE hereunder, LICENSEE shall pay to PFIZER payments in the following manner.

4.3.2 In partial consideration for the rights granted by PFIZER, the LICENSEE agrees that, upon the issuance of any Subsequent Financing Securities, or at any time at the request of PFIZER, the LICENSEE shall issue to PFIZER a number of shares of Common Stock equal to 15 percent of the LICENSEE'S Fully-Diluted Shares (such shares, the "Stock Consideration"). LICENSEE agrees that it shall take all such actions that are reasonably requested by Pfizer, or that are otherwise necessary or required, to give effect to the foregoing issuance of stock to PFIZER. LICENSEE represents and warrants to PFIZER that the Stock Consideration, when issued, and delivered in accordance with the terms hereof, will be duly and validly issued, fully-paid and non-assessable and will be issued in compliance with all applicable "federal and state securities laws regarding registration or qualification of such securities, and will not be issued in violation of any pre-emptive rights.

4.3.3 **Milestone Payments**. LICENSEE shall notify PFIZER as soon as practicable upon achievement of each Milestone. In further consideration of the licenses and rights granted to LICENSEE, within thirty (30) days upon achievement of each Milestone set forth below, LICENSEE shall pay to PFIZER the corresponding non-creditable and non-refundable milestone payment (each, a "Milestone Payment").

MILESTONE	MILESTONE PAYMENT
· Date of Regulatory Submission in any and first country in the Territory	$[*]
· Date of receipt of Regulatory Approval in the following countries	USA $[*] EU $[*] Japan $[*]
· One year Post Approval of the First received Regulatory Approval in any country in the Territory	$[*]

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MILESTONE	MILESTONE PAYMENT
· Sales Milestones	$[*] one-time payment upon achieving consolidated Net Sales of $[*]. $[*] one-time payment when first achieving consolidated Net Sales of $[*]. $[*] one-time payment when first achieving consolidated Net Sales of $[*]. $[*] one-time payment when first achieving consolidated Net Sales of $[*].

4.3.4 **Royalty Payments**.

(a) In consideration of the licenses and rights granted to the LICENSEE hereunder, LICENSEE shall pay to PFIZER the royalties set forth below on consolidated Net Sales of Product(s) in the Territory (collectively, "**Royalties**").

NET SALES	ROYALTY RATE
Net Sales equal to [*] per Calendar Year	[*] of Net Sales
Net Sales equal to [*] per Calendar Year	[*] of Net Sales
Net Sales equal or more than [*] per Calendar Year	[*] of Net Sales

(b) LICENSEE shall pay to PFIZER the applicable Royalties within thirty (30) days following the expiration of each Calendar Quarter after the date of the First Commercial Sale. Royalties will be payable on a country-by-country basis commencing as of the First Commercial Sale of a Product in each country until the expiration of the Royalty Term for such Product in each country.

(c) All payments shall be accompanied by a report that includes reasonably detailed information regarding a total monthly sales calculation of Net Sales of Product (including all Deductions) and all Royalties payable to PFIZER for the applicable Calendar Quarter (including any foreign exchange rates employed).

(d) This Royalty shall be payable for the Royalty Term. It is expressly clarified that any and all fees, royalties, income or any direct or indirect benefit from association with the Permitted sublicense shall be valued and included for the purposes of

computing and ascertaining Milestone Payments and Royalties that shall be payable to PFIZER.

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4.3.5 **Other Payments**. LICENSEE shall pay to PFIZER any other amounts due under this Agreement within thirty (30) days following receipt of invoice.

4.3.6 **Late Payments**. Any late payments shall bear interest, to the extent permitted by law, at [*] on the date payment is due.

4.4 **Payment Method**.

4.4.1 Any payments under Section 5 that are recorded in currencies other than the US Dollar shall be converted into US Dollars at the average of the daily foreign exchange rates published in the Wall Street Journal (or any other qualified source that is acceptable to both Parties) for the Calendar Quarter in which such payments or expenses occurred, or for periods less than a Calendar Quarter, the average of the daily rates published in the Wall Street Journal for such period.

4.4.2 All payments from LICENSEE to PFIZER shall be made by wire transfer in US Dollars to the credit of such bank account as may be designated by PFIZER in writing to LICENSEE. Any payment which falls due on a date which is not a Business Day may be made on the next succeeding Business Day.

4.5 **Taxes**.

4.5.1 It is understood and agreed between the Parties that any amounts payable by LICENSEE to PFIZER hereunder are exclusive of any and all applicable sales, use, VAT, GST, excise, property, and other taxes, levies, duties or fees (collectively, "**Taxes**"). LICENSEE shall be responsible for billing and collection from its customers and remitting to the appropriate taxing authority any and all Taxes which it is required to collect or remit. Each Party will be responsible for their own income and property taxes.

4.5.2 If LICENSEE is required to make a payment to PFIZER subject to a deduction of tax or withholding tax (a "**Withholding Tax Requirement**"), then the sum payable by LICENSEE (in respect of which such deduction or withholding is required to be made) shall be increased to the extent necessary to ensure that PFIZER receives a sum equal to the sum which it would have received had no such Withholding Tax Requirement been applicable, and the amount required to be deducted or withheld shall be remitted by LICENSEE in accordance with Applicable Law. Any such withholding taxes required under Applicable Law to be paid or withheld shall be an expense of, and borne solely by, LICENSEE.

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4.5.3 The Parties agree to cooperate and produce on a timely basis any tax forms or reports, including an IRS Form W-8BEN, reasonably requested by the other Party in connection with any payment made by LICENSEE to PFIZER under this Agreement.

4.6 In the event that licensee is unable to adequately commercialize the Product or license Patents within a period of ten (10) years, PFIZER shall have the option of revoking the License Patents in its favor and/or that of its Affiliates. Any monies paid by the Licensee to PFIZER shall remain nonrefundable.

5. **RECORDS; AUDIT RIGHTS**

5.1 **Relevant Records**.

5.1.1 **Relevant Records**. LICENSEE shall maintain accurate financial books and records pertaining to and LICENSEE's sale of the Product, including any and all calculations of the applicable Fees (collectively, "**Relevant Records**"). LICENSEE shall maintain the Relevant Records for the longer of: (a) the period of time required by Applicable Law, or (b) three (3) years following expiration or termination of this Agreement.

5.1.2 **Audit Request**. PFIZER shall have the right during the term and for twelve (12) months thereafter to engage, at its own expense, an independent auditor reasonably acceptable to LICENSEE to examine the Relevant Records from time-to-time, but no more frequently than once every twelve (12) months, as may be necessary to verify compliance with the terms of this Agreement. Such audit shall be requested in writing at least seven (7) days in advance, and shall be conducted during LICENSEE's normal business hours and otherwise in manner that minimizes any interference to LICENSEE's business operations.

5.1.3 **Audit Fees and Expenses**. PFIZER shall bear any and all fees and expenses it may incur in connection with any such audit of the Relevant Records; provided, however, in the event an audit reveals an underpayment of LICENSEE of more than [*] as to the period subject to the audit, LICENSEE shall reimburse PFIZER for any reasonable and documented out-of-pocket costs and expenses of the audit within thirty (30) days after receiving invoices thereof.

5.1.4 **Payment of Deficiency**. If any audit establishes that LICENSEE underpaid any amounts due to PFIZER under this Agreement, then LICENSEE shall pay PFIZER any such deficiency within thirty (30) days after receipt of written notice thereof. For the avoidance of doubt, such payment will be considered a late payment, subject to section 5.1.6.

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6. **INTELLECTUAL PROPERTY RIGHTS**

6.1 **Pre-existing IP**. Each Party shall retain all rights, title and interests in and to any Intellectual Property Rights that are owned, licensed or sublicensed by such Party prior to or independent of this Agreement.

6.2 **Developed IP**. LICENSEE shall own all rights, title and interests in and to any Intellectual Property Rights that are both: (a) related to the Product, and (b) conceived solely by LICENSEE, its Affiliates or Permitted sub licensee's following the Effective Date (collectively, "**Developed IP**"). LICENSEE hereby grants to PFIZER a non-exclusive, sub licensable, royalty-free right and license under the Developed IP for any research or development purpose. For clarification purposes this license is a non-commercial license.

6.3 **Patent Prosecution**.

(a) Patent Prosecution and Maintenance. Subject to PFIZER's rights set forth below, LICENSEE will be responsible for filing, prosecuting (including in connection with any reexaminations, oppositions and the like) and maintaining the Patent Rights in the Territory (and in PFIZER's name)at LICENSEE's own cost and expense. LICENSEE will select qualified patent counsel and corresponding foreign associates to prepare, file, prosecute and maintain the Patent Rights. LICENSEE will keep PFIZER reasonably informed of the status of the Patent Rights by timely providing PFIZER copies of significant communications relating to such Patent Rights that are received from any patent office or patent counsel of record or foreign associate.

Assistance.

As reasonably requested by PFIZER in writing, LICENSEE shall obtain patent term restoration at LICENSEE'S expense (under, but not limited to, the Drug Price Competition and Patent Term Restoration Act), supplementary protection certificates or their equivalents, and patent term extensions with respect to the Patent Rights in the United States, Japan and Europe.

(b) **Failure to Prosecute or Maintain**. In the event LICENSEE elects to forgo filing, prosecution or maintenance of the Patent Rights, LICENSEE shall notify PFIZER of such election at least forty-five (45) days prior to any filing or payment due date, or any other due date that requires action ("**Election Notice**"). Upon receipt of an Election Notice, PFIZER shall be entitled, upon written notice to LICENSEE, at its sole discretion and expense, to

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file or to continue the prosecution or maintenance of such Patent Right in such country in PFIZER's name using counsel of its own choice and at its own expense ("**Pfizer Patent Rights**"), in which case, the term "Patent Rights" shall be modified to exclude the Pfizer Patent Rights as of the date LICENSEE provides PFIZER such Election Notice.

7. **INFRINGEMENT; MISSAPPROPRIATION**

7.1 **Notification**. Each Party will promptly notify the other Party in writing of any actual or threatened infringement, misappropriation or other violation by a Third Party of any License Patents in the Territory of which it becomes aware ("**Third Party Infringement**").

7.2 **Infringement Action**.

7.2.1 **Right of First Enforcement**.

(a) LICENSEE shall have the first right (but not the obligation), at its own expense, to control enforcement of the License Patents against any Third Party Infringement. Prior to commencing any such action, LICENSEE shall consult with PFIZER and shall give due consideration to PFIZER's recommendations regarding the proposed action. LICENSEE shall give PFIZER timely notice of any proposed settlement of any such action instituted by LICENSEE and shall not, without the prior written consent of PFIZER, enter into any settlement that would: (i) adversely affect the validity, enforceability or scope of any of the Patent Rights, (ii) give rise to liability of PFIZER or its Affiliates, (iii) admit non-infringement of any Patent Rights, or (iv) otherwise impair PFIZER's rights in any License Patents or this Agreement.

(b) If LICENSEE does not obtain agreement from the alleged infringer to desist or fails to initiate an infringement action within: (i) sixty (60) days following LICENSEE's receipt of notice of the alleged infringement, or (ii) thirty (30) days before the expiration date for filing such actions, whichever comes first, PFIZER shall have the right, at its sole discretion, to control such enforcement of the License Patents at its sole expense.

7.2.2 **Recoveries.** Any recoveries resulting from an action relating to a claim of Third Party Infringement shall first be applied against payment of each Party's costs and expenses incurred in connection therewith

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(a) Any remaining recoveries shall be retained by (or if received by PFIZER, paid to) LICENSEE; provided however, PFIZER shall be entitled to a Royalty on such remaining recoveries at the applicable rate set forth herein as if the amount of such remaining recoveries were Net Sales of LICENSEE in the Calendar Year in which the recoveries were received by LICENSEE. If LICENSEE fails to institute an action or proceeding and PFIZER exercise its right to prosecute such infringement, any remaining recoveries shall be retained by PFIZER.

8. **CONFIDENTIALITY**

8.1 **Definition**. "**Confidential Information**" means the terms and provisions of this Agreement and other proprietary information and data of a financial, commercial or technical nature that the disclosing Party or any of its Affiliates has supplied or otherwise made available to the other Party or its Affiliates, which are: (a) disclosed in writing or (b) if disclosed orally, summarized in writing and provided to the receiving Party after disclosure. All Know-How shall be considered PFIZER's Confidential Information.

8.2 **Obligations**. The receiving Party will protect all Confidential Information against unauthorized disclosure to Third Parties with reasonable degree of care. The receiving Party may disclose the Confidential Information to its Affiliates, and their respective directors, officers, employees, subcontractors, Permitted sublicense's, consultants, attorneys, accountants, banks and investors (collectively, "**Recipients**") who have a need-to-know such information for purposes related to this Agreement, provided that the receiving Party shall hold such Recipients to written obligations of confidentiality with terms and conditions at least as restrictive as those set forth in this Agreement.

8.3 **Exceptions**.

8.3.1 The obligations under this Section shall not apply to any information to the extent the receiving Party can demonstrate by competent evidence that such information:

(a) is (at the time of disclosure) or becomes (after the time of disclosure) known to the public or part of the public domain through no breach of this Agreement by the receiving Party or any Recipients to whom it disclosed such information;

(b) was known to, or was otherwise in the possession of, the receiving Party prior to the time of disclosure by the disclosing Party;

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(c) is disclosed to the receiving Party on a non confidential basis by a Third Party who is entitled to disclose it without breaching any confidentiality obligation to the disclosing Party; or

(d) is independently developed by or on behalf of the receiving Party or any of its Affiliates, as evidenced by its written records, without use or access to the Confidential Information.

8.3.2 The restrictions set forth in this Section shall not apply to any Confidential Information that the receiving Party is required to disclose under Applicable Laws or a court order or other governmental order, provided that the receiving Party: (a) provides the disclosing Party with prompt notice of such disclosure requirement if legally permitted, (b) affords the disclosing Party an opportunity to oppose or limit, or secure confidential treatment for such required disclosure and (c) if the disclosing Party is unsuccessful in its efforts pursuant to subsection (b), discloses only that portion of the Confidential Information that the receiving Party is legally required to disclose as advised by the receiving Party's legal counsel.

8.3.3 In the event that PFIZER wishes to assign, pledge or otherwise transfer its rights to receive some or all of the Milestone Payments and Royalties payable hereunder, PFIZER may disclose to a Third Party Confidential Information of LICENSEE in connection with any such proposed assignment, provided that PFIZER shall hold such Third Parties to written obligations of confidentiality with terms and conditions at least as restrictive as those set forth in this Agreement.

8.4 **Right to Injunctive Relief**. LICENSEE agrees that breaches of this Section may cause irreparable harm to PFIZER and shall entitle PFIZER, in addition to any other remedies available to it (subject to the terms of this Agreement), the right to seek injunctive relief enjoining such action.

8.5 **Ongoing Obligation for Confidentiality**. Upon expiration or termination of this Agreement, the receiving Party shall, and shall cause its Recipients to, destroy or return (as requested by the disclosing Party) any Confidential Information of the disclosing Party, except for one copy which may be retained in its confidential files for archive purposes.

9. **REPRESENTATIONS, WARRANTIES AND COVENANTS**

9.1 **Representations and Warranties by Each Party**. Each Party represents and warrants to the other Party as of the Effective Date that:

* Information redacted pursuant to a confidential treatment request by Gemphire Therapeutics Inc. under 5 U.S.C. §552(b)(4) and Rule 406 under the Securities Act of 1933 and submitted separately with the Securities and Exchange Commission.

(a) it is a corporation duly organized, validly existing, and in good standing under the laws of its jurisdiction of formation;

(b) it has full corporate power and authority to execute, deliver, and perform under this Agreement, and has taken all corporate action required by Applicable Law and its organizational documents to authorize the execution and delivery of this Agreement and the consummation of the transactions contemplated by this Agreement;

(c) this Agreement constitutes a valid and binding agreement enforceable against it in accordance with its terms;

(d) all consents, approvals and authorizations from all governmental authorities or other Third Parties required to be obtained by such Party in connection with this Agreement have been obtained; and

(e) the execution and delivery of this Agreement and all other instruments and documents required to be executed pursuant to this Agreement, and the consummation of the transactions contemplated hereby do not and shall not: (i) conflict with or result in a breach of any provision of its organizational documents, (ii) result in a breach of any agreement to which it is a party that would impair the performance of its obligations hereunder; or (iii) violate any Applicable Law.

9.2 **Representations and Warranties by LICENSEE**.

9.2.1 LICENSEE represents and warrants that it has the financial and commercial capabilities to Develop and Commercialize the Product in accordance with this Agreement.

9.2.2 LICENSEE represents and warrants to PFIZER that it shall comply with all Applicable Law with respect to the performance of its obligations hereunder.

9.2.3 Without limiting the generality contained herein, LICENSEE shall comply with the U.S. Foreign Corrupt Practices Act of 1977 (as modified or amended). LICENSEE represents and warrants that it has not and will not directly or indirectly offer or pay, or authorize such offer or payment of, any money, or transfer anything of value, to improperly seek to influence any Government Official. If LICENSEE is itself a Government Official, LICENSEE represents and warrants that it has not accepted, and will not accept in the future, such a payment or transfer. As used herein, "Governmental Official" means: (a) any elected or appointed government

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official *(e.g.*, a member of a ministry of health), (b) any employee or person acting for or on behalf of a government official, agency, or enterprise performing a governmental function, (c) any political party officer, employee, or person acting for or on behalf of a political party or candidate for public office, (d) an employee or person acting for or on behalf of a public international organization, or (e) any person otherwise categorized as a government official under local law. "**Government**" is meant to include all levels and subdivisions of non-U.S. governments *(i.e.*, local, regional, or national and administrative, legislative, or executive). LICENSEE will update these warranties if it or any of its employees, or a relative of such an individual, becomes a Government Official, or if a Government or Government Official becomes an owner of LICENSEE.

9.3 **No Other Warranties**. EXCEPT AS EXPRESSLY STATED HEREIN, NEITHER PARTY MAKES ANY REPRESENTATIONS OR EXTENDS ANY WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, INCLUDING BUT NOT LIMITED TO WARRANTIES OF TITLE, NON-INFRINGEMENT, VALIDITY, ENFORCEABILITY, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OF THE LICENSED PRODUCT. ANY INFORMATION PROVIDED BY PFIZER OR ITS AFFILIATES IS MADE AVAILABLE ON AN "AS IS" BASIS WITHOUT WARRANTY WITH RESPECT TO COMPLETENESS, COMPLIANCE WITH REGULATORY STANDARDS OR REGULATIONS OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER KIND OF WARRANTY WHETHER EXPRESS OR IMPLIED.

10. **INDEMNIFICATION**

10.1 **Indemnification by LICENSEE**. LICENSEE agrees to indemnify, hold harmless and defend PFIZER and its Affiliates, and their respective officers, directors, employees, contractors, agents and assigns (collectively, "**Pfizer Indemnitees**"), from and against any Claims arising or resulting from: (a) the Development of a Product by LICENSEE, its Affiliates (b) the Commercialization of a Product by LICENSEE, its Affiliates, subcontractors or Permitted sub licensees, (c) the negligence, recklessness or wrongful intentional acts or omissions of LICENSEE, its Affiliates, subcontractors or Permitted sub licensees, (d) breach by LICENSEE of any representation, warranty or covenant as set forth in this Agreement or (e) breach by LICENSEE of the scope of the license set forth in this Agreement. As used herein, "Claims" means collectively, any and all Third Party demands, claims, actions and proceedings (whether criminal or civil, in contract, tort or otherwise) for losses, damages, liabilities, costs and expenses (including reasonable attorneys' fees).

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10.2 In the event of any non-compliance of any terms contained herein the LICENSEE hereby confirms and undertakes that any and all of its rights as provided herein in the Licensed Patents, including but not limited to all documents, materials or applications that maybe in possession or name of the Licensee or its Affiliate, shall be deemed to have been irrevocably transferred back to PFIZER, at no cost to PFIZER. Costs for such transfer shall be borne by the LICENSEE.

10.3 **Indemnification Procedure**. In connection with any Claim for which PFIZER seeks indemnification from LICENSEE pursuant to this Agreement, PFIZER shall: (a) give LICENSEE prompt written notice of the Claim; provided, however, that failure to provide such notice shall not relieve LICENSEE from its liability or obligation hereunder, except to the extent of any material prejudice as a direct result of such failure; (b) cooperate with LICENSEE, at LICENSEE's expense, in connection with the defense and settlement of the Claim; and (c) permit LICENSEE to control the defense and settlement of the Claim; provided, however, that LICENSEE may not settle the Claim without PFIZER's prior written consent, which shall not be unreasonably withheld or delayed, in the event such settlement materially adversely impacts PFIZER's rights or obligations. Further, PFIZER shall have the right to participate (but not control) and be represented in any suit or action by advisory counsel of its selection and at its own expense.

11. LIMITATION OF LIABILITY

Consequential Damages Waiver. EXCEPT FOR A BREACH OF SECTION 9 OR OBLIGATIONS ARISING UNDER SECTION 10, NEITHER PARTY SHALL BE LIABLE FOR ANY INDIRECT, CONSEQUENTIAL, SPECIAL, EXEMPLARY OR PUNITIVE DAMAGES, INCLUDING DAMAGES FOR LOST PROFITS OR LOST REVENUES REGARDLESS OF WHETHER IT HAS BEEN INFORMED OF THE POSSIBILITY OR LIKELIHOOD OF SUCH DAMAGES OR THE TYPE OF CLAIM, CONTRACT OR TORT (INCLUDING NEGLIGENCE).

12. TERM; TERMINATION

12.1 **Term**. The term of this Agreement shall commence as of the Effective Date and shall expire upon the last-to-expire Royalty Term.

12.2 **Termination for Cause**. Each Party shall have the right, without prejudice to any other remedies available to it at law or in equity, to terminate this Agreement in the event the other Party breaches any of its material obligations hereunder and fails to cure such breach within thirty (30) days of receiving notice thereof; provided, however, if such breach is capable of being cured, but cannot be cured within such thirty (30) day period, and the breaching Party initiates actions to

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cure such breach within such period and thereafter diligently pursues such actions, the breaching Party shall have such additional period as is reasonable to cure such breach, but in no event will such additional period exceed sixty (60) days. Any termination by a Party under this Section shall be without prejudice to any damages or other legal or equitable remedies to which it may be entitled from the other Party. For the avoidance of doubt, LICENSEE's failure to use Commercially Reasonable Efforts to Develop and Commercialize the Product shall constitute a material breach by LICENSEE under this Agreement.

12.3 **Termination for a Bankruptcy Event**. Each Party shall have the right to terminate this Agreement in the event of a Bankruptcy Event with respect to the other Party. "**Bankruptcy Event**" means the occurrence of any of the following: (a) the institution of any bankruptcy, receivership, insolvency, reorganization or other similar proceedings by or against a Party under any bankruptcy, insolvency, or other similar law now or hereinafter in effect, including any section or chapter of the United States Bankruptcy Code, as amended or under any similar laws or statutes of the United States or any state thereof (the "**Bankruptcy Code**"), where in the case of involuntary proceedings such proceedings have not been dismissed or discharged within ninety (90) days after they are instituted, (b) the insolvency or making of an assignment for the benefit of creditors or the admittance by a Party of any involuntary debts as they mature, (c) the institution of any reorganization, arrangement or other readjustment of debt plan of a Party not involving the Bankruptcy Code, (d) appointment of a receiver for all or substantially all of a Party's assets, or (e) any corporate action taken by the board of directors of a Party in furtherance of any of the foregoing actions.

12.4 **Termination for Challenge to License Patents**. PFIZER shall have the right to immediately terminate this Agreement at any time after the Effective Date in its entirety or on a country-by-country basis in the event LICENSEE or any of its Affiliates or its or their Permitted sub licensees contests, challenges, supports or assists any Third Party to contest or challenge, in any patent office, court, regulatory agency or other forum, PFIZER's ownership of or rights in, or the validity, enforceability or scope of, any of the License Patents.

12.5 **Termination for Convenience**. LICENSEE shall have the right to terminate this Agreement for convenience upon ninety (90) days prior written notice to PFIZER. In the event LICENSEE terminates for convenience, LICENSEE shall pay to PFIZER an early termination fee in an amount equal to US Dollars [*].

12.6 **Effect of Termination or Expiration**.

12.6.1 Upon termination or expiration of this Agreement, LICENSEE shall pay to PFIZER all amounts due to PFIZER as of the effective date of termination or expiration within thirty (30) days following the effective date of termination or expiration.

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12.6.2 Upon termination of this Agreement, LICENSEE shall have the right to sell its remaining inventory of Product following the termination of this Agreement so long as LICENSEE has fully paid any and all Royalties, Milestone Payments and Permitted sublicense Fees owed to PFIZER, and LICENSEE otherwise is not in material breach of this Agreement.

12.6.3 Subject to this Section 12, upon termination of this Agreement, all licenses granted by PFIZER to LICENSEE shall terminate. For clarity, termination of the licenses granted by PFIZER to LICENSEE shall terminate all Permitted sublicenses granted by LICENSEE hereunder.

12.6.4 With the exception of termination of this Agreement by LICENSEE pursuant to Section 12.2, upon termination of this Agreement:

(a) LICENSEE hereby grants to PFIZER a non-exclusive, fully paid-up, royalty-free, worldwide, transferable, perpetual and irrevocable license, with the right to sublicense, to Use any Intellectual Property Rights Controlled by LICENSEE that arise from the Development or Commercialization of the Product, including without limitation, any and all Developed IP for Use of the Product.

(b) To the extent permitted by applicable Regulatory Authorities, LICENSEE shall: (i) transfer to PFIZER all Regulatory Filings and Regulatory Approvals held by LICENSEE with respect to the Product, and (ii) to the extent subsection (i) is not permitted by the applicable Regulatory Authority, permit PFIZER to cross-reference and rely upon any Regulatory Approvals and Regulatory Filings filed by LICENSEE with respect to the Product.

(c) LICENSEE hereby grants to PFIZER a fully paid-up, royalty-free, worldwide, transferable, sub licensable, perpetual and irrevocable license to use the Trademarks identifying a Product for the purpose of manufacturing, marketing, distributing and selling the Product. As used herein, "**Trademarks**" means all registered and unregistered trademarks, service marks, trade dress, trade names, logos, insignias, domain names, symbols, designs, and combinations thereof.

(d) Upon PFIZER's request, LICENSEE shall continue all on-going Development for a mutually agreed upon migration period after termination of this Agreement, which period shall not be less than six (6) months unless otherwise agreed to by the Parties ("**Migration Period**"). During the Migration Period, LICENSEE shall provide such knowledge transfer and other training to

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PFIZER or its Affiliates or a Third Party that is designated in writing by PFIZER ("**Designated Affiliate/Third Party**") as reasonably necessary for PFIZER or the Designated Affiliate/Third Party to continue such activities. In connection with such transfer, LICENSEE shall, at PFIZER's option: (i) transfer to PFIZER or the Designated Affiliate/Third Party all Product at the cost paid by LICENSEE to manufacture such Product, (ii) transfer to PFIZER or the Designated Affiliate/Third Party all Licensee Inventory owned by LICENSEE at the cost paid by LICENSEE for such Licensee Inventory, and (iii) assign to PFIZER or the Designated Affiliate/Third Party any agreements with Third Parties with respect to the Development or Commercialization of the Product. As used herein, "**Licensee Inventory**" means all components and works in process produced or held by LICENSEE with respect to the manufacture of Products.

12.7 **Survival**. Expiration or termination of this Agreement shall not relieve the. Parties of any obligation accruing hereunder prior to such expiration or termination. Without limiting the foregoing, the provisions of Sections 5, 6.1, 8, 10, 11, 12.6, 14, 15, 16.3 and 16.8 shall survive expiration or termination of this Agreement.

13. PUBLICITY

13.1 **Publicity**.

13.1.1 Subject to PFIZER's rights herein), neither Party (nor any of its Affiliates or agents) shall use the Trademarks of the other Party or its Affiliates in any press release, publication or other form of promotional disclosure without the prior written consent of the other Party in each instance.

13.1.2 Each Party agrees not to issue any press release or other public statement, whether written, electronic, oral or otherwise, disclosing the existence of this Agreement, the terms hereof or any information relating to this Agreement without the prior written consent of the other Party, provided however, that neither Party will be prevented from complying with any duty of disclosure it may have pursuant to Applicable Law or the rules of any recognized stock exchange so long as the disclosing Party provides the other Party at least ten (10) Business Days prior written notice to the extent practicable and only discloses information to the extent required by Applicable Law or the rules of any recognized stock exchange.

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14. LICENSEE INSURANCE

14.1 **Insurance Requirements**. LICENSEE will maintain during the term of this Agreement and until the later of: (a) three (3) years after termination or expiration of this Agreement, or (b) the date that all statutes of limitation covering claims or suits that may be instituted for personal injury based on the sale or use of the Product have expired, commercial general liability insurance from a minimum "A-" AM Bests rated insurance company, including contractual liability and product liability or clinical trials, if applicable, with coverage limits of not less than [*] per occurrence and [*] in the aggregate. LICENSEE has the right to provide the total limits required by any combination of primary and umbrella/excess coverage. The minimum level of insurance set forth herein shall not be construed to create a limit on LICENSEE's liability hereunder. Such policies shall name PFIZER and its Affiliates as additional insured and provide a waiver of subrogation in favor of PFIZER and

its Affiliates. Such insurance policies shall be primary and non-contributing with respect to any other similar insurance policies available to PFIZER or its Affiliates. Any deductibles for such insurance shall be assumed by LICENSEE.

14.2 **Policy Notification**. LICENSEE shall provide PFIZER with certified copies of such policies or original certificates of insurance evidencing such insurance: (a) prior to execution by both Parties of this Agreement, and (b) prior to expiration of any one coverage. Such certificates shall provide that PFIZER shall be given at least thirty (30) days written notice prior to cancellation, termination or any change to restrict the coverage or reduce the limits afforded.

15. DISPUTE RESOLUTION

15.1 **General**. Except for disputes for which injunctive or other equitable relief is sought to prevent the unauthorized use or disclosure of proprietary materials or information or prevent the infringement or misappropriation of a Party's Intellectual Property Rights, the following procedures shall be used to resolve any dispute arising out of or in connection with this Agreement.

15.2 **Meeting**. Promptly after the written request of either Party, each of the Parties shall appoint a designated representative to meet in person or by telephone to attempt in good faith to resolve any dispute. If the designated representatives do not resolve the dispute within sixty (60) Business Days of such request, then an executive officer of each Party shall meet in person or by telephone to review and attempt to resolve the dispute in good faith. The executive officers shall have sixty (60) Business Days to attempt to resolve the dispute.

16. GENERAL PROVISIONS

16.1 **Assignment**. Neither Party may assign its rights and obligations under this Agreement without the other Party's prior written consent, except that: (a) PFIZER may assign to a Third Party its rights to receive some or all of the Fees

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payable hereunder, (b) each Party may assign its rights and obligations under this Agreement or any part hereof to one or more of its Affiliates without the consent of the other Party; and (c) either Party may assign this Agreement in the event of a Change in Control. As used herein, "**Change in Control**" means the acquisition of a party by a Third Party or the sale of all or substantially all of its business to which this Agreement relates. The assigning Party shall provide the other Party with prompt written notice of any such assignment. Any permitted assignee pursuant to clauses (b) and (c) above shall assume all obligations of its assignor under this Agreement, and no permitted assignment shall relieve the assignor of liability for its obligations hereunder. Any attempted assignment in contravention of the foregoing shall be void.

16.2 **Severability**. Should one or more of the provisions of this Agreement become void or unenforceable as a matter of law, then such provision will be ineffective only to the extent of such prohibition or invalidity, without invalidating the remainder of this Agreement, and the Parties agree to substitute a valid and enforceable provision therefore which, as nearly as possible, achieves the desired economic effect and mutual understanding of the Parties under this Agreement.

16.3 **Governing Law; Exclusive Jurisdiction**.

16.3.1 This Agreement shall be governed by and construed under the laws in effect in the State of New York, US, without giving effect to any conflicts of laws provision thereof or of any other jurisdiction that would produce a contrary result.

16.3.2 The courts of New York shall have exclusive jurisdiction over any action brought to enforce this Agreement, and each of the Parties hereto irrevocably: (a) submits to such exclusive jurisdiction for such purpose; (b) waives any objection which it may have at any time to the laying of venue of any proceedings brought in such courts; (c) waives any claim that such proceedings have been brought in an inconvenient forum, and (d) further waives the right to object with respect to such proceedings that any such court does not have jurisdiction over such Party. Notwithstanding the foregoing, application may be made to any court of competent jurisdiction with respect to the enforcement of any judgment or award.

16.4 **Force Majeure**. Except with respect to delays or nonperformance caused by the negligent or intentional act or omission of a Party, any delay or nonperformance by such Party (other than payment obligations under this Agreement) will not be considered a breach of this Agreement to the extent such delay or nonperformance is caused by acts of God, natural disasters, acts of the government or civil or military authority, fire, floods, epidemics, quarantine, energy crises, war or riots or other similar cause outside of the reasonable control

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of such Party (each, a "**Force Majeure Event**"), provided that the Party affected by such Force Majeure Event will promptly begin or resume performance as soon as reasonably practicable after the event has abated. If the Force Majeure Event prevents a Party from performing any of its obligations under this Agreement for one hundred eighty (180) days or more, then the other Party may terminate this Agreement immediately upon written notice to the non-performing Party.

16.5 **Waivers and Amendments**. The failure of any Party to assert a right hereunder or to insist upon compliance with any term or condition of this Agreement shall not constitute a waiver of that right or excuse a similar subsequent failure to perform any such term or condition by the other Party. No waiver shall be effective unless it has been given in writing and signed by the Party giving such waiver. No provision of this Agreement may be amended or modified other than by a written document signed by authorized representatives of each Party.

16.6 **Relationship of the Parties**. Nothing contained in this Agreement shall be deemed to constitute a partnership, joint venture, or legal entity of any type between PFIZER and LICENSEE, or to constitute one Party as the agent of the other. Moreover, each Party agrees not to construe this Agreement, or any of the transactions contemplated hereby, as a partnership for any tax purposes. Each Party shall act solely as an independent contractor, and nothing in this Agreement shall be construed to give any Party the power or authority to act for, bind, or commit the other Party.

16.7 **Successors and Assigns**. This Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and permitted assigns.

16.8 **Notices**. All notices, consents, waivers, and other communications under this Agreement must be in writing and will be deemed to have been duly given when: (a) delivered by hand (with written confirmation of receipt), (b) sent by fax (with written confirmation of receipt), provided that a copy is sent by an internationally recognized overnight delivery service (receipt requested), or (c) when received by the addressee, if sent by an internationally recognized overnight delivery service (receipt requested), in each case to the appropriate addresses and fax numbers set forth below (or to such other addresses and fax numbers as a Party may designate by written notice):

If to PFIZER:

Pfizer Inc.
235 East 42nd Street
New York, NY 10017
Fax: [*]
Attention: General Counsel

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If to LICENSEE:

Michigan Life Therapeutics, LLC
2020 Shadford Road
Ann Arbor, MI 48104
Fax: 734-864-5765
Attention: Dr. Charles Bisgaier

16.9 **Further Assurances**. LICENSEE and PFIZER hereby covenant and agree without the necessity of any further consideration, to execute, acknowledge and deliver any and all such other documents and take any such other action as may be reasonably necessary or appropriate to carry out the intent and purposes of this Agreement.

16.10 **No Third Party Beneficiary Rights**. This Agreement is not intended to and shall not be construed to give any Third Party any interest or rights (including, without limitation, any third party beneficiary rights) with respect to or in connection with any agreement or provision contained herein or contemplated hereby.

16.11 **Entire Agreement; Confidentiality Agreement**.

(a) This Agreement, together with its Schedules, sets forth the entire agreement and understanding of the Parties as to the subject matter hereof and supersedes all proposals, oral or written, and all other prior communications between the Parties with respect to such subject matter, including, without limitation, that certain Confidentiality Agreement by and between the Parties, dated October 28, 2008 and amendment dated January 29, 2009 ("**CDA**"). The Parties acknowledge and agree that, as of the Effective Date, all Evaluation Material (as defined in the CDA) disclosed by PFIZER or its Affiliates pursuant to the CDA shall be considered PFIZER's Confidential Information and subject to the terms set forth in this Agreement.

(b) In the event of any conflict between a material provision of this Agreement and any Schedule hereto, the Agreement shall control.

16.12 **Counterparts**. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

16.13 **Cumulative Remedies**. No remedy referred to in this Agreement is intended to be exclusive, but each shall be cumulative and in addition to any other remedy referred to in this Agreement or otherwise available under law.

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16.14 **Waiver of Rule of Construction**. Each Party has had the opportunity to consult with counsel in connection with the review, drafting and negotiation of this Agreement. Accordingly, any rule of construction that any ambiguity in this Agreement shall be construed against the drafting Party shall not apply.

[Signatures on next page]

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IN WITNESS WHEREOF, the Parties intending to be bound have caused this Agreement to be executed by their duly authorized representatives as of the Effective Date.

MICHIGAN LIFE THERAPEUTICS, LLC

By: /s/ Charles L. Bisgaier

Name: Charles L. Bisgaier

Title: Chief Executive Manager
Michigan Life Therapeutics, LLC

PFIZER

By: /s/ Tim Rolph

Name: Tim Rolph

Title: VP, Pfizer Global Research
Head of CV, Metabolic and Endocrine

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SCHEDULE A: PATENT RIGHTS

1. PATENTS

Docket Number	Former Dkt No	Country	Application Number	Application Date	Status	Sub Status
[*]	[*]	[*]	[*]	[*]	[*]	[*]

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Exhibit 10.11

POWERSCOURT OFFICE BUILDING

LEASE

THIS LEASE is made between the Landlord and Tenant hereinafter identified in Paragraph 1(b) and 1(c) hereof, respectively, and constitutes a Lease between the parties of the "demised premises" in the "Building" as defined in Paragraph 2 hereof on the terms and conditions and with and subject to the covenants and agreements of the parties hereinafter set forth.

W I T N E S E T H:

BASE LEASE PROVISIONS

1. The following are certain lease provisions, which are part of, and in certain instances referred to in subsequent provisions of, this Lease.

(a) Date of Lease: May 18, 2016

(b) Landlord: North Laurel Project, LLC

(c) Tenant: Gemphire Therapeutics Inc.

(d) Demised Premises: Suite 401 5,311 Rentable Sq. Ft.

(e) Commencement Date: August 1, 2016

(f) Expiration Date: July 31, 2019

(g) Rent:

Year 1:	8/1/2016 — 7/31/2017	$19.00 per Rentable Sq. Ft.
Year 2:	8/1/2017 — 7/31/2018	$19.50 per Rentable Sq. Ft.
Year 3:	8/1/2018 — 7/31/2019	$20.00 per Rentable Sq. Ft.

(h) Provided there are no events of default, Tenant has, with six months written notice to Landlord, option to extend this Lease an additional two years, as follows:

Year 4:	8/1/2019 — 7/31/2020	$20.50 per Rentable Sq. Ft.
Year 5:	8/1/2020 — 7/31/2021	$21.00 per Rentable Sq. Ft.

(i) Tenant will pay suite electric upon occupancy

(j) Base Taxes: $ 1.48 per sq.ft.

(k) Tenant's Share: 4.72%

(l) Tenant's Address for Notices:

Gemphire Therapeutics Inc.
17199 N. Laurel Park Drive, Ste. 401
Livonia, MI 48152

(m) Landlord's Address for Notices:

North Laurel Project, LLC.
37000 Grand River, Ste. 360
Farmington Hills, MI. 483
248 476 3700

(n) Deposit: $8,060.75

(o) The first month's rent and security deposit are due upon signing of the lease. An additional amount of $75,000, equal to 9.3 months of prepaid rent, will be due at signing and will remain as prepaid rent until such time as Tenant closes an equity financing of not less than $10 million, at which time the prepaid rent will then be applied to the immediate subsequent monthly rents until the $8,060.75 security deposit remains on deposit. In the event tenant fails to close on an equity financing of at least $10 million during the term of the lease, the prepaid rent will be applied to final months of the lease period.

DEMISED PREMISES

2. (a) Landlord, in consideration of the rents to be paid and the covenants and agreements to be performed by Tenant, does hereby lease unto Tenant premises situated in the City of Livonia, County of Wayne and State of Michigan, described in Paragraph 1(d) hereof, in that certain office building, the address of which is 17199 North Laurel Park Drive, Livonia Michigan, (hereinafter referred to as the "Building") as shown on the floor plan, Exhibit "A" hereto,

(hereinafter referred to as the "demised premises"), together with the non-exclusive right and easement to use the parking and common facilities which may from time to time be furnished by Landlord in common with Landlord and the Tenants and occupants (their agents, employees, customers and invitees) of the Building. Landlord reserves the right to designate certain parking areas for the exclusive use of designated Tenants.

(b) Landlord shall renovate/build out the demised premises in accordance with the provisions of Exhibit "A" hereto. If Tenant shall be responsible for the payment of any amounts to Landlord pursuant to the provisions of Exhibit "A", Tenant shall pay the same prior to Landlord's commencing such work and within (10) days after receipt of an invoice therefore.

TERM

3. (a) The term of this Lease shall commence on the commencement date set forth in Paragraph 1(e) hereof and expire on the expiration date set forth in Paragraph 1(f) hereof, fully to be completed and ended. In the event Landlord fails to deliver the demised premises on the commencement date because the demised premises are not then ready for occupancy, or because the previous occupant of said premises is holding over, or for any other cause beyond Landlord's control, Landlord shall not be liable to Tenant for any damages as a result of Landlord's delay in delivering the demised premises, nor shall any such delay affect the validity of this Lease or the obligations of Tenant hereunder, and the commencement date of this lease shall be postponed until such time as the demised premises are ready for Tenant's occupancy. The demised premises shall be deemed ready for occupancy upon Landlord notifying Tenant that Landlord has substantially completed the improvements to the demised premises set forth on Exhibit "B" hereto.

(b) Tenant shall furnish Landlord, from time to time upon request a letter addressed to Landlord or its mortgagee or a potential mortgagee or purchaser of the Building stating that: Tenant has accepted the demised premises for occupancy; the demised premises have been completed as herein required, and setting forth the commencement date (as the same may have been extended) and expiration date of this Lease and such other information as either Landlord or the mortgagee, potential mortgagee or purchaser of the Building shall request.

RENT

4. (a) Tenant shall pay to Landlord as rent for the demised premises during each year of the term of this Lease the sums set forth in Paragraph 1 (g) hereof. Such rent shall be paid upon **THE FIRST DAY OF EACH MONTH** throughout the term of this Lease; provided, however, that if the lease term shall commence on a day other than the first day of a calendar month or shall end on a day other than the last day of a calendar month, the rental for such first or last fractional month shall be such portion of the monthly rental then in effect as the number of days in such fractional month bears to the total number of days in the calendar month.

(b) Tenant shall pay as additional rent any money and charges required to be paid by Tenant pursuant to the terms of this Lease, whether or not the same may be designated "additional rent".

(c) All amounts payable by Tenant to Landlord hereunder, if not paid when due, shall bear interest from the date due until paid at the rate of two percent (2%) in excess of the "prime rate" published from time to time in the Wall Street Journal.

USE AND OCCUPANCY

5. During the continuation of this Lease, the demised premises shall be used and occupied for office and incidental purposes and for no other purposes without the written consent of Landlord. Tenant shall not conduct its business in a manner which will cause an increase in fire and extended coverage insurance premiums for the demised premises or Building. Tenant shall not use the demised premises for any purpose in violation of any law, municipal ordinance, or regulation, nor shall Tenant perform any acts or carry on any practices which may injure the demised premises or the Building or be a nuisance, disturbance, or menace to the other tenants of the Building. Tenant shall not cause or permit the use, generation, storage or disposal in or about the demised premises of the Building of any substances, materials or wastes subject to regulation under federal, state or local laws from time to time in effect concerning hazardous, toxic or radioactive materials, unless Tenant shall have received Landlord's prior written consent, which Landlord may withhold or at any time revoke in its sole and absolute discretion. Upon breach of this agreement, Landlord shall have the right to terminate this Lease forthwith and to reenter and repossess the demised premises, but Landlord's right to damages will survive.

UTILITIES AND SERVICES

6 (a) Landlord shall furnish the demised premises with water, heat, air conditioning, electricity, elevator service, sewerage, and janitorial services as may be required, in the sole judgment of Landlord, for the comfortable use and occupancy of the demised premises. Such heat and air conditioning shall be provided during the hours from 8:00 a.m. to 6:00 p.m. Monday through Friday and 8:00 a.m. to 1:00 p.m. on Saturdays (in each case excluding holidays) and if such heat and air conditioning are furnished to or consumed by Tenant during other hours, Landlord may impose a reasonable uniform charge therefore. Landlord shall not be liable or responsible for any interruption in such utilities or other services due to causes beyond Landlord's reasonable control or for interruptions in connection with the making of repairs or improvements to the demised premises or the Building, nor shall such interruption be deemed an actual or constructive eviction or partial eviction or result in an abatement of rental. Notwithstanding the provisions of this Paragraph 6(a), Landlord shall not be required to provide ventilation and air conditioning to the demised premises as herein provided if Tenant shall utilize in the demised premises heat generating equipment or lighting other than building standard lights which affect the temperature otherwise maintained by the air conditioning system or if the demised premises are occupied by a number of persons in excess of the design criteria of the air-conditioning system.

(b) Electricity shall be used only for purposes of illumination and ordinary office purposes, and for such purposes contemplated in Tenant's space plan. Tenant shall not, without the written consent of Landlord, use any apparatus or device in the building, which will in any way increase the amount of water, heat, or air conditioning customarily required for ordinary office purposes. In the event Tenant requires additional water, heat or air conditioning for extraordinary purposes as determined by Landlord, Landlord may then furnish such additional utility services at Tenant's sole cost and expense.

(c) Landlord shall charge Tenant monthly for electrical services supplied to the Premises. Landlord shall install individual electric meters and charge Tenant for its metered electrical use at the applicable General Service Rate then in effect as prescribed by the proper regulatory authorities. If the premises are less than 1500 measured square feet, Landlord may, in lieu of installing an electrical meter, estimate Tenant's electrical usage billings on the basis of the estimated electrical usage.

The amounts payable by Tenant to Landlord for electrical usage or for charges made by Landlord shall be considered as additional rent under this Lease ("Additional Rent") and any default in payment of the Additional Rent shall entitle Landlord to utilize the remedies available for non-payment for rent.

REPAIRS

7. (a) Landlord shall make all necessary repairs and replacements to the Building and to the common areas, including parking areas, heating, air conditioning and electrical systems located therein, and Landlord shall also make all repairs to the demised premises which are structural in nature or required due to fire, casualty, or other act of God; provided, however, that Tenant shall make all repairs and replacements arising from its act, neglect or default. Except as provided above, Tenant shall keep the demised premises in good repair, including any special equipment installed in the demised premises (such as, but not limited to, air conditioners, transformers and plumbing), whether installed by Landlord or Tenant, and Tenant shall upon the expiration of the term of this Lease, yield and deliver up the demised premises in like condition as when taken, reasonable use and wear thereof and repairs required to be made by Landlord excepted.

(b) In the event that Landlord shall deem it necessary or be required by any governmental authority to repair, alter, remove, reconstruct or improve any part of the demised premises or of the Building (unless the same result from Tenant's act, neglect, default or mode of operation in which event Tenant shall make all such repairs, alterations and improvements), then the same shall be made by Landlord with reasonable dispatch, and should the making of such repairs, alterations or improvements cause any interference with Tenant's use of the demised premises, such interference shall not relieve Tenant from the performance of its obligations hereunder nor shall such interference be deemed an actual or constructive eviction or partial eviction or result in an abatement of rental. Notwithstanding the foregoing, Tenant shall, at its own cost and expense, make all repairs and provide all maintenance in connection with any alterations, additions or improvements made by Tenant pursuant to Paragraph 8 hereof.

ALTERATIONS

8. Tenant shall not make any alterations, additions or improvements to the demised premises (whether or not the same may be structural in nature) without Landlord's prior written consent, and all alterations, additions, or improvements made by either party hereto to the demised premises, including wiring, cables, risers and similar installations, except movable office furniture and equipment installed at Tenant's expense, shall be the property of Landlord and remain upon and be surrendered with the demised premises at the expiration of the term hereof; provided, however, that Landlord may require Tenant to remove any additions made by Tenant to the demised premises, including wiring, cables, risers and similar installations and to repair any damage caused by such removal, and provided further, that if Tenant has not removed its property and equipment within ten (10) days after the expiration or termination of this Lease, Landlord may elect to retain the same as abandoned property or remove same and charge the expense of removal against the Tenant, and if the Tenant does not reimburse the Landlord for said expense, the Landlord may apply all or any portion of Tenant's Security Deposit toward the payment thereof. Tenant shall only use contractors approved by Landlord for the permitted alternations to the demised premises and shall not permit any construction liens to be placed or remain upon the demised premises.

ASSIGNMENT AND SUBLETTING

9. (a) Tenant covenants not to assign or transfer this Lease or hypothecates or mortgages the same or sublet the demised premises or any part thereof without the prior written consent of Landlord, which shall not be unreasonably withheld, but in the event of any such assignment or transfer, Tenant shall remain fully liable to perform all of its obligations under this Lease. Any assignment, transfer (including transfers by operation of law or otherwise), hypothecation, mortgage, or subletting without such written consent shall give Landlord the right to terminate this Lease and to reenter and repossess the demised premises but Landlord's right to damages shall survive. No consent by Landlord to any assignment, transfer, hypothecation, mortgage or subletting on any one occasion shall be deemed a consent to any subsequent assignment, transfer, hypothecation, mortgage or subletting by Tenant or by any successors, assigns, transferees, mortgagees or sub lessees of Tenant.

(b) If at any time or from time to time during the term of this Lease, Tenant desires to sublet all or any part of the demised premises or to assign this Lease, Tenant shall give notice to Landlord setting forth the proposed subtenant or assignee, the terms of the proposed subletting and the space so proposed to be sublet or the terms of the proposed assignment, as the case may be. Landlord shall have the option, exercisable by notice given to Tenant within twenty (20) days after Tenant's notice is given, (i) if Tenant's request relates to a subletting, either to sublet from Tenant such space at the rental and other terms set forth in Tenant's notice, or, if the proposed subletting is for the entire demised premises for the balance of the term, to terminate this Lease, or (ii) if Tenant's request relates to an assignment, either to have this Lease assigned to Landlord or to terminate this Lease. If Landlord does not exercise such option, Tenant shall be free for a period of one hundred eighty (180) days thereafter to sublet such space or to assign this Lease to such third party if and only if Landlord shall consent thereto, provided that the sublease or assignment shall be on the same terms set forth in the notice given to Landlord and that the rental to such subtenant as assignee shall not be less than the then market rate for such premises.

(c) In the event Tenant shall so sublet a portion of the demised premises, or assign this Lease, all of the sums or other economic consideration received by Tenant as a result of such subletting or assignment whether denominated rentals or otherwise, under the sublease or assignment, which exceed in the aggregate, the total sum which Tenant is obligated to pay Landlord under this Lease (prorated to reflect obligations allocable to that portion of the demised premises subject to such sublease) shall be payable to Landlord as additional rental under this Lease without affecting or reducing any other obligation of Tenant hereunder.

(d) Sublease fee.

If the Tenant intends to sublease all or part of the space, and Tenant requests Landlords assistance in providing a Sub-Tenant and Landlord does in fact provide and acceptable Sub-Tenant, Tenant will pay Landlord a leasing fee of 5% of the rent negotiated between Tenant and Sub-Tenant upon execution of the sublease agreement.

INSURANCE AND INDEMNIFICATION

10. Tenant shall indemnify and hold Landlord harmless from any liability for damages to any person or property in, on or about the demised premises, which shall include all common areas and grounds, from any cause whatsoever, and Tenant shall procure and keep in effect during the entire term hereof public liability and property damage insurance protecting Landlord and Tenant from all causes including their own negligence, having as limits of liability Two Million Dollars ($2,000,000.00) for damages resulting from one occurrence, and Two Hundred Fifty Thousand Dollars ($250,000.00) for property damage resulting from any one occurrence. Tenant shall deliver policies of such insurance or certificates thereof to Landlord and such policies shall not be cancelable without thirty (30) days' written notice to Landlord. In the event Tenant shall fail to procure such insurance, Landlord may at its option procure the same for the account of Tenant, and the cost thereof shall be paid to Landlord as additional rent upon receipt by Tenant of bills therefore.

FIRE

11. (a) In the event the demised premises are damaged or destroyed in whole or in part by fire or other insured casualty during the term hereof, Landlord shall, at its own cost and expense, repair and restore the same to tenantable condition with reasonable dispatch, and the rent herein provided shall be reduced in direct proportion to the amount of the demised premises so damaged or destroyed until such time as the demised premises are restored to tenantable condition. If the demised premises cannot be restored to tenantable condition within a period of one hundred fifty (150) days, Landlord and Tenant shall each have the right to terminate this Lease upon written notice to the other (Tenant's cancellation notice shall be given within 30 days after receipt of written notice from Landlord that the demised premises cannot be timely restored), and any rent paid for any period in advance of the date of such damage and destruction shall be refunded to Tenant. If the demised premises are damaged due to fire or other casualty Tenant shall at its own cost and expense remove such of its furniture and other belongings from the demised premises as Landlord shall require in order to repair and restore the demised premises. Landlord shall use reasonable discretion as to the extent of the untenantability of the demised premises and of the time required for the repair and rebuilding of the same and no such damage or untenantability shall be deemed either an actual or constructive eviction or result in an abatement of rent (except as provided herein for insured casualties).

(b) In the event the Building is destroyed to the extent of more than one-half of the then value thereof, Landlord shall have the right to terminate this Lease upon written notice to Tenant, in which event any rent paid in advance of the date of such destruction shall be refunded to Tenant.

(c) Tenant shall procure and keep in effect fire insurance (including standard extended coverage endorsement perils and leakage from fire protective devices) for the full replacement cost of Tenant's trade fixtures, equipment, and personal property and leasehold improvements.

(d) Landlord and Tenant do each hereby release the other from any liability resulting from damage by fire or any other peril covered by extended coverage insurance with waiver of subrogation normally available in the State of Michigan irrespective of the cause therefore; provided, however, that if any increase in premium is required for such waiver of subrogation, the other party will pay such increase or the waiver will not be furnished.

EMINENT DOMAIN

12. If the whole or any substantial part of the demised premises or the Building shall be taken by any public authority under the power of eminent domain, then the term of this Lease shall cease on the part so taken on the date possession of that part shall be required for public use, and any rent paid in advance of such date shall be refunded to Tenant, and Landlord and Tenant shall each have the right to terminate this Lease upon written notice to the other, which notice shall be delivered within thirty (30) days following the date notice is received of such taking. In the event that neither party hereto shall terminate this Lease, Landlord shall, to the extent the proceeds of the condemnation award (other than any proceeds awarded for the value of any land taken) are available, make all necessary repairs to the demised premises and the Building to render and restore the same to a complete architectural unit and Tenant shall continue in possession of the portion of the demised premises not taken under the power of eminent domain, under the same terms and conditions as are herein provided, except that the rent reserved herein shall be reduced in direct proportion to the amount of the demised premises so taken. All damages awarded for taking shall belong to and be the property of Landlord, whether such damages be awarded as compensation for diminution in value of the leasehold or to the fee of the demised premises; provided, however, Landlord shall not be entitled to any portion of the award made to Tenant for removal and reinstallation of trade fixtures, loss of business, or moving expenses.

RULES AND REGULATIONS

13. The rules and regulations set forth on Exhibit C hereto, together with such other reasonable rules and regulations as Landlord shall make from time to time which are of uniform applicability to all tenants of the Building and of which Tenant shall have received notice, shall be binding upon Tenant and are hereby expressly made a part of this Lease.

TAXES

14. (a) For purposes of this Lease, the following terms shall have the following meanings:

(i) The term "Taxes" shall mean the amount incurred by Landlord of all ad valorem real property taxes and assessments, special or otherwise, levied upon or with respect to the Building and appurtenant facilities, or the rent and additional charges payable hereunder, imposed by any taxing authority having jurisdiction. Taxes shall also include the Michigan Single Business Tax relating to all rentals from the Building, including pursuant to this Lease and all taxes, levies and charges which may be assessed, levied or imposed in replacement of, or in addition to , all or any part of ad valorem real property taxes as revenue sources, and which in whole or in part are measured or calculated by or based upon the Building and appurtenant facilities, the freehold and/or leasehold estate of Landlord or Tenant, or the rent and other charges payable hereunder. Taxes shall include any expenses incurred by Landlord in determining or attempting to obtain a reduction of Taxes.

(ii) The term "Base Taxes" shall mean the amount per square foot set forth in Paragraph 1(h) hereof multiplied by the aggregate leasable square foot area of the Building.

(iii) The term "Additional Taxes" shall mean the total dollar increase, if any, over the base taxes paid or incurred by Landlord in the respective calendar year.

(iv) The term "Tenant's Share" shall mean the percentage set forth in paragraph 1(i) hereof. Tenant's Share has been computed on the basis of the square foot area of the demised premises divided by the total leasable square foot area of the Building (including the demised premises).

(b) Tenant shall pay to Landlord as additional rental Tenant's Share of Additional Taxes in the manner and at the times herein provided.

(i) Prior to the commencement date and prior to the beginning of each calendar year thereafter, or as soon thereafter as practicable, Landlord shall give Tenant notice of Landlord's estimate of Tenant's Share of Additional Taxes for the ensuing calendar year. On or before the first day of each month during the ensuing calendar year, Tenant shall pay to Landlord one-twelfth (1/12th) of such estimated amount, provided that until such notice is given with respect to the ensuing calendar year, Tenant shall continue to pay the amount currently payable pursuant hereto until after the month such notice is given. If at any time or times (including, without limitation, upon Tenant taking occupancy of the demised premises) it appears to Landlord that Tenant's Share of Additional Taxes for the then current calendar year will vary from Landlord's estimate by more than five percent (5%), Landlord may, by notice to Tenant, revise its estimate for such year and subsequent payments by Tenant for such year shall be based upon revised estimate.

(ii) Within ninety (90) days after the close of each calendar year, or as soon after such ninety (90) day period is practicable, Landlord shall deliver to Tenant a statement prepared by Landlord of Tenant's Share of Additional Taxes for such calendar year and such statements shall be final and binding upon Landlord and Tenant. If on the basis of such statement, Tenant owes an amount that is less than the estimated payments for such calendar year previously made by Tenant, Landlord shall credit such excess amount against the next payment(s) due from Tenant to Landlord of Additional Taxes. If on the basis of such statement, Tenant owes an amount that is more than the estimated payments for such calendar year previously made by Tenant, Tenant shall pay the deficiency to Landlord within ten (10) days after delivery of such statement.

(iii) If this Lease shall commence on a day other than the first day of a calendar year or terminate on a day other than the last day of a calendar year, Tenant's Share of Additional Taxes that is applicable to the calendar year in which such commencement or termination shall occur shall be prorated on the basis of the number of calendar days within such year as are within the term of this Lease.

(c) In addition to the monthly rental and other charges payable by Tenant hereunder, Tenant shall reimburse Landlord upon demand for any and all taxes payable by Landlord (other than net income taxes and taxes included within Taxes) whether or not now customary or within the contemplation of the parties hereto: (i) upon, measured by or reasonably attributable to the cost or value of Tenant's equipment, furniture, fixtures and other personal property located in the demised premises; (ii) upon or with respect to the possession, leasing, operation, management, maintenance, alteration, repair, use or occupancy by Tenant of the demised premises or any portion thereof; and (iii) upon this transaction or any document to which Tenant is a party creating or transferring an interest or an estate in the demised premises. In the event that it shall not be lawful for Tenant so to reimburse Landlord, the monthly rental payable to Landlord under this Lease shall be revised to net to Landlord the same rental after imposition of any such tax upon Landlord as would have been payable to Landlord prior to the imposition of any such tax.

QUIET ENJOYMENT

15. Landlord warrants that Tenant, upon paying the rents hereinbefore provided and in performing each and every covenant hereof, shall peacefully and quietly hold, occupy and enjoy the demised premises throughout the term hereof, without molestation or hindrance by any person holding under or through Landlord.

SUBORDINATION

16. Landlord (and its mortgagee(s)) reserves the right to subject and subordinate this Lease at all times to the lien of any mortgage(s) or ground or underlying lease(s) now or hereafter placed upon Landlord's interest in the demised premises or on the land and Building, and Tenant agrees upon request to execute an agreement subordinating its interest and/or attornment agreement to such mortgagees and lessors and appoints Landlord its attorney-in-fact to execute and deliver any such instruments; provided, however, that no default by Landlord under any such mortgage or ground lease shall affect Tenant's rights hereunder so long as Tenant shall not be in default. Notwithstanding the foregoing, at the request of Landlord's mortgagee(s) or such ground lessor, this Lease may be made prior and superior mortgage or mortgages and/or such ground lease.

NON-LIABILITY

17. (a) Landlord shall not be responsible or liable to Tenant for any loss or damage that may be occasioned by or through the acts or omissions of persons occupying adjoining premises or any part of the premises adjacent to or connected with the demised premises or any part of the Building or for any loss or damage resulting to Tenant or his property from burst, stopped or leaking water, gas, sewer or steam pipes, or for any damage or loss of property within the demised premises from any cause whatsoever excepting that caused by the negligence of Landlord, his agents or employees and no such occurrence shall be deemed to be an actual or constructive eviction from the demised premises or result in an abatement of rental.

(b) In the event of any sale or transfer (including any transfer by operation of law) of the demised premises, Landlord (and any subsequent owner of the demised premises making such a transfer) shall be relieved from any and all obligations and liabilities under this Lease except such obligations and liabilities as shall have arisen during Landlord's (or such subsequent owner's) respective period of ownership, provided that the transferee assumes in writing all of the obligations of Landlord under this Lease.

(c) If Landlord shall fail to perform any covenant, term or condition of this Lease upon Landlord's part to be performed, and, if as a consequence of such default, Tenant shall recover a money judgment against Landlord, such judgment shall be satisfied only against the right, title and interest of Landlord in the Building and out of rents or other income from the Building receivable by Landlord, or out of the consideration received by Landlord from the sale or other disposition of all or any part of Landlord's right, title and interest in the Building, and neither Landlord nor any of the partners comprising the partnership which is the Landlord herein shall be liable for any deficiency.

NON-WAIVER

18. One or more waivers of any covenant or condition by Landlord shall not be construed as a waiver of a subsequent breach of the same covenant or condition, and the consent or approval by Landlord to or of any act by Tenant requiring Landlord's consent or approval shall not be deemed to waive or render unnecessary Landlord's consent or approval to or of any subsequent similar act by Tenant.

BANKRUPTCY

19. (a) In the event the estate created hereby shall be taken in execution or by other process of law, or if Tenant shall be adjudicated insolvent or bankrupt pursuant to the provisions of any state or federal insolvency or bankruptcy law, or if a receiver or trustee of the property of Tenant shall be appointed, or if any assignment shall be made of Tenant's property for the benefit of creditors or if a petition shall be filed by or against Tenant seeking to have Tenant adjudicated insolvent or bankrupt pursuant to the provisions of any state or federal insolvency or bankruptcy law and such petition shall not be withdrawn and the proceedings dismissed within ninety (90) days after the filing of the petition, then and in any of such events, Landlord may terminate this Lease by written notice to Tenant; provided, however, if the order of the court creating any of such disabilities shall not be final by reason of pendency of such proceedings, or appeal from such order, or if the petition shall have been withdrawn or the proceedings dismissed within ninety (90) days after the filing of the petition then Landlord shall not have the right to terminate this Lease so long as Tenant performs its obligations hereunder.

(b) If, as a matter of law, Landlord has no right on the bankruptcy of Tenant to terminate this Lease, then, if Tenant, as debtor, or its trustee, wishes to assume or assign this lease, in addition to curing or adequately assuring the cure of all defaults existing under this Lease on Tenant's part on the date of filing of the proceeding (such assurances being defined below), Tenant, as debtor, or the trustee or assignee, must also furnish adequate assurances of future

performance under this Lease (as defined below). Adequate assurance of curing defaults means the posting with Landlord of a sum in cash sufficient to defray the cost of such a cure. Adequate assurance of future performance under this Lease means posting a deposit equal to three (3) months' rent, including all other charges payable by Tenant hereunder, such as the amounts payable pursuant to Paragraph 14 hereof, and in the case of an assignee, assuring Landlord that the assignee is financially capable of assuming this Lease, and that its use of the demised premises will not be detrimental to the other tenants in the Building or Landlord. In a reorganization under Chapter 11 of the Bankruptcy Code, the debtor or trustee must assume this Lease or assign it within sixty (60) days from the filing of the proceeding, or he shall be deemed to have rejected and terminated this Lease.

LANDLORD'S REMEDIES

20. (a) In the event Tenant shall fail to pay the rent or any other obligations involving the payment of money reserved herein when due, Landlord shall give Tenant written notice of such default and if Tenant shall fail to cure such default within ten (10) days after receipt of such notice, Landlord shall, in addition to its other remedies provided by law, and in this Lease, have the remedies set forth in Paragraph 20(c) hereof.

(b) If Tenant shall be in default in performing any of the terms of this Lease other than the payment of rent or any other obligation involving the payment of money, Landlord shall give Tenant written notice of such default, and if Tenant shall fail to cure such default within twenty (20) days after the receipt of such notice, or if the default is of such a character as to require more than twenty (20) days to cure, then if Tenant shall fail within said twenty (20) day period to commence and thereafter proceed diligently to cure such default, then and in either of such events, Landlord may (at its option and in addition to its other legal remedies) cure such default for the account of Tenant and any sum so expended by Landlord shall be additional rent for all purposes hereunder, including Paragraph 20(a) hereof, shall be paid by Tenant with the next monthly installment of rent.

(c) If any rent or any other obligation involving the payment of money shall be due and unpaid or Tenant shall be in default upon any of the terms of this Lease, and such default has not been cured after notice and within the time period in Paragraphs 20(a) and (b) hereof, or, if the premises are abandoned or vacated, then Landlord, in addition to its other remedies, shall have the immediate right of reentry. Should Landlord elect to reenter or take possession pursuant to legal proceedings or any notice provided for by the law, Landlord may either terminate this Lease or from time to time, without terminating this Lease, relet the premises or any part thereof on such terms and conditions as Landlord shall in its sole discretion deem advisable. The avails of such releting shall be applied first, to the payment of any indebtedness of Tenant to Landlord other than rent due hereunder; second, to the payment of any reasonable alterations and repairs to the demised premises; third, to the payment of rent due and unpaid hereunder; and the residue, if any, shall be held by Landlord and applied in payment of future rent as the same may become due and payable hereunder. Should the avails of such releting during any month be less than the monthly rent reserved hereunder, then Tenant shall during each such month pay such deficiency to Landlord. Upon any such termination of this Lease, Landlord may recover the worth at such time of the excess, if any, of the amount of rent and charges equivalent to the rent and charges reserved in this Lease for the remainder of the stated term over the then reasonable rental value of the demised premises for the remainder of the stated term, which amount shall be immediately due and payable.

(d) All rights and remedies of Landlord hereunder shall be cumulative and none shall be exclusive of any other rights and remedies allowed by law.

(e) If as a result of any breach or default in the performance of any of the provisions of this Lease, Landlord uses the services of an attorney in order to secure compliance with such provisions or recover damages therefore, or to terminate this Lease or evict Tenant, Tenant shall reimburse Landlord upon demand for any and all attorneys' fees and expenses so incurred by Landlord.

HOLDING OVER

21. It is hereby agreed that in the event of Tenant holding over after the terminating of this Lease, thereafter the tenancy shall be from month to month in the absence of a written agreement to the contrary, and Tenant shall pay to Landlord a daily occupancy charge equal to seven percent (7%) of the monthly rental under Paragraph 4 hereof for the last lease year (plus all other charges payable by Tenant under this Lease) for each day from the expiration or termination of this Lease until the date the demised premises are delivered in the condition required herein, and Landlord's right to damages for such illegal occupancy shall survive.

ENTIRE AGREEMENT

22. This Lease shall constitute the entire agreement of the parties hereto; all prior agreements between the parties, whether written or oral, are merged herein and shall be of no force and effect. This Lease cannot be changed, modified or discharged orally but only by an agreement in writing, signed by the party against whom enforcement of the change, modification or discharge is sought.

NOTICES

23. Whenever under this Lease a provision is made for notice of any kind it shall be deemed sufficient notice and service thereof if such notice to Tenant is in writing addressed to Tenant at the address set forth in Paragraph 1(j) hereof, or at the demised premises, and deposited in the mail, certified or registered mail, with postage prepaid, and if such notice to Landlord is in writing addressed to Landlord at the address set forth in Paragraph 1(k) hereof and deposited in the mail, certified or registered mail with postage prepaid. Each of Tenant and Landlord may change the address to which notices are sent hereunder by notice to the other. Notice need be sent to only one Tenant or Landlord where Tenant or Landlord is more than one person.

SUCCESSORS

24. This agreement shall inure to the benefit of and be binding upon the parties hereto, their respective heirs, administrators, executors, representatives, successors and assigns.

INABILITY TO PERFORM

25. If, by reason of the occurrence of unavoidable delays due to acts of God, governmental restrictions, strikes, labor disturbances, shortages of materials or supplies or for any other cause or event beyond Landlord's reasonable control, Landlord is unable to furnish or is delayed in furnishing any utility or service required to be furnished by Landlord under the provisions of this Lease, or is unable to perform or make or is delayed in performing or making any

installations, decorations, repairs, alterations, additions or improvements required to be performed or made under this lease, or is unable to fulfill or is delayed in fulfilling any of Landlord's obligations under this lease, no such inability or delay shall constitute an actual or constructive eviction in whole or in part, or entitled Tenant to any abatement or diminution of rental or other charges due hereunder or relieve Tenant from any of its obligations under this Lease, or impose any liability upon Landlord or its agents by reason of inconvenience or annoyance to Tenant, or injury to or interruption of Tenant's business, or otherwise.

SECURITY DEPOSIT

26. Upon the execution of this Lease, Tenant has deposited with Landlord the deposit set forth in Paragraph 1(1) hereof. The Deposit shall be held by Landlord as security for the faithful performance by Tenant of all of the provisions of this Lease to be performed or observed by Tenant. If Tenant fails to pay rent or other charges due hereunder, or otherwise defaults with respect to any provision of this Lease, Landlord may, but shall have no obligation to, use, apply or retain all or any portion of the Deposit for the payment of any rent or other charges in default or for the payment of any other sum to which Landlord may become obligated by reason of Tenant's default or to compensate Landlord for any loss or damage which Landlord may suffer thereby. If Landlord so uses or applies all or any portion of the deposit, Tenant shall within ten (10) days after demand therefore, deposit cash with Landlord in an amount sufficient to restore the deposit to the full amount thereof. The retention or application of such Security Deposit by the Landlord pursuant to this clause or any other clause does not constitute a limitation on or waiver of Landlord's right to seek further remedy under law or equity. Landlord shall not be required to keep the deposit separate from its general account. If Tenant performs all of Tenant's obligations hereunder, the deposit or so much thereof as had not theretofore been applied by Landlord shall be returned, without payments of interest or other increment for its use, to Tenant (or, at Landlord's option, to the last assignee, if any, of Tenant's interest hereunder) at the expiration of the term and after Tenant has vacated the demised premises. No trust relationship is created herein between Landlord and Tenant with respect to the Deposit.

CONFIDENTIALITY

27. Tenant agrees that the terms and conditions surrounding any Lease Agreement either proposed or accepted by the parties is confidential, and that the Landlord could suffer damages if the same were disclosed to third-parties. Accordingly, Tenant shall hold and treat all such information in the strictest of confidence and will not, directly or indirectly, disclose or permit anyone else to disclose any such information to any other entity, or person and that Tenant shall not use or permit to be used this information in any manner detrimental to Landlord.

Tenant shall be liable for all costs and damages incurred by Landlord (including reasonable attorney fees) as a result of Tenant's breach of this Confidentiality Agreement.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands as of the day and year first above written.

Gemphire Therapeutics, Inc.:

/S/ MINA SOOCH
Name: Mina Sooch
Its: CEO & President
Date: 5/18/2016

/S/ AMY RABOURN
Witness

North Laurel Project, LLC

/S/ THOMAS A. DUKE
Name: Thomas A. Duke
Its: President, Thomas A. Duke Company
Date: 5/18/2016

/S/ AMY RABOURN
Witness

EXHIBIT A

Construction Plans within Landlords files are hereby a part of this Lease.

EXHIBIT B

North Laurel Project, LLC
Tenant Build-out Standards
At Landlord's Expense

Demising Walls:

1. Metal studs with ½" drywall each side extending to the deck above.

Interior Walls:

1. Metal studs with ½" drywall each side. Walls extend to ceiling grid.

Finishes:

1. Carpet throughout, direct glue application, select from building standard carpet books provided by Landlord
2. VCT in break room or similar support spaces, select from Armstrong Standard Excelon
3. Base:
    a. 4" bound carpet base to match or coordinate with carpet
    b. 4" vinyl cove base with VCT flooring
4. Painted walls, select from building standard samples/manufacturers
5. 1/2" horizontal blinds to match building standard exterior windows

Ceilings:

1. 2'x2' aluminum grid system (15/16" flush white), installed prior to construction of all interior partitions
2. Acoustical ceiling tile: Armstrong Dune, 2' x 2' (if new tile is needed)

Electrical:

1. Two (2) duplex electrical outlets per office
2. One (1) duplex phone/data opening per office
3. Junction boxes as needed for hardwiring furniture (powered panels)
4. 2'x4' LED light fixtures, with Direct/Indirect lens
5. Separate electrical meter for each suite, if not currently installed.
6. Six (6) dedicated power outlets (1-copier, 1-phone system, 1-server room, 2-kitchen, 1-receptionist) (quantities may increase with increased suite size)

Suite entry:

1. 3' x 8' frameless glass door with 18" or 24" glass sidelight, recessed off corridor, with Brushed Chrome Handle and Lockset
2. One (1) key per employee

Interior Doors:

1. Solid Core Plastic 3' x 8' door
    a. Laminate: Wilsonart Windsor Mahogany 7039-60
    b. Frame: Prefinished Steel
    c. Hardware: Brushed Chrome Lever Passage (#626 finish)

General:

1. Landlord warrants that floors have been designed for live floor load of up to 100 pounds per square foot.
2. Sprinkler heads to accommodate partition layout per State Code.

Typical Tenant Upgrades
At Tenant's Expense

1. All cabling for IT for phones, computers, TV's, security and the like
2. Full or partial height glass walls of any configuration, including door framed side lights
3. Locksets for interior doors
4. Cabinetry, counters, sinks and disposal in break room
5. Landlord does not supply or maintain appliances. Landlord will install them at tenant's expense.
6. Sound insulation in interior walls and over ceilings
7. Ceiling grid replacement when grid has been removed for Tenant to create an 'exposed' ceiling
8. Wallcovering
9. Upgraded carpet
10. Carpet pad
11. Separate thermostat/HVAC for server room…any supplemental HVAC unit
12. Special ventilation and/or cooling for server room, conference, or break rooms
13. Extra light switches
14. Any non-building standard light fixtures and their replacement bulbs
15. Separate circuits and voltage requirements other than 120 volts
16. Floor coring for electrical and data
17. All non-standard electrical materials and labor to be installed by Landlord's electrician at additional cost to tenant
18. Extraneous services — excessive revisions or changes, furniture design & field measuring, abnormally high level of detail
19. All furniture for suite

Landlord will make every effort to accommodate any and all changes by Tenant. However, changes to the plans after the lease is signed or to the finishes after selected, will impact tenant costs or rent scheduled in the Lease Agreement.

The decision of the Landlord's architect or receipt of a certificate of occupancy shall be final and conclusive as to whether and when the demised premises are substantially completed and ready for occupancy.

EXHIBIT C
REGULATIONS

Tenant shall comply with, and shall not permit any violation of the following regulations which may be reasonably amended by Landlord from time to time.

A. Wherever the word "Tenant" or "Landlord" occurs, it is understood and agreed that it shall mean their associates, agents, clerks, servants and visitors.

B. The common or public areas of the building and grounds shall not be obstructed or used for any purpose other than coming to and from the premises. Parking areas shall be used only for transient parking by tenants, their employees and visitors and shall not be used to store vehicles or for parking large commercial or recreational vehicles.

C. Landlord has the right to control access to the building and refuse admittance to any person or persons without satisfactory identification on a pass issued by Tenant during hours determined by Landlord.

D. Landlord shall have the right to enter upon the leased premises at reasonable hours, upon reasonable prior notice to the Tenant, for the purposes of inspecting the same. Landlord's employees will not perform any work outside their regular duties unless under special instruction of Landlord.

E. Landlord shall have the right to enter leased premises at reasonable hours, upon reasonable prior notice to the Tenant, for the purposes of exhibiting the same to prospective tenants within a one hundred twenty (120) day period prior to the expiration of the Lease.

F. No person shall disturb other occupants of this or other adjoining buildings or premises by making loud or disturbing noises.

G. Soliciting, peddling and canvassing is prohibited in the building and Tenant shall cooperate to prevent the same. No vending machine shall be operated in the building by any tenant without prior written consent of Landlord.

H. All deliveries and removals of furniture, equipment, or other bulky items must take place after notification to Landlord, during such hours and in such manner determined by Landlord. Tenant shall be responsible for all damage or injury resulting from the delivery or removal of all articles into or out of the building or premises. No load shall be placed on the floor of the premises or in elevators in excess of the limits which shall be established by Landlord. Tenant's equipment shall be placed and operated only in such locations approved by Landlord.

I. Tenant shall not use any equipment emitting noxious fumes unless they are properly vented at Tenant's expense. Smoking is not permitted anywhere or anytime within the building.

J. Nothing shall be attached to the exterior of the building premises without the prior written consent of Landlord. Building standard blinds shall be used in windows designated by Landlord. No other window treatments or objects shall be attached to, hung in or used connection with any window or door of the premises without written consent of Landlord.

K. No sign or other representation shall be placed to the interior or exterior of the building without prior written consent of Landlord. Landlord will provide building standard tenant identification in the building directories and at the suite entrance.

L. No additional locks shall be placed on any door in the building without Landlord's prior written consent. A reasonable number of keys will be furnished by Landlord and Tenant shall not make or permit any duplicate keys to be made. Additional keys can be provided by Landlord at Tenants cost.

M. In the event the Landlord approves the use of computer equipment or kitchen appliances, Tenant shall pay or reimburse Landlord for its allocable share of the increased electricity cost resulting from such operation. Tenant shall also pay for any private metering of said computer equipment, if required.

N. No articles deemed hazardous shall be brought into the building or premises. No bicycles, vehicles, or animals of any kind shall be brought into or kept in or about the building or premises.

O. No markings, painting, drilling, boring, cutting, or defacing of the building or premises shall be permitted without prior written consent of Landlord. Plastic protective floor mats shall be maintained over all carpeted areas under desk chairs with casters.

P. The electrical system and lighting fixtures in the building and premises shall not be altered or disturbed without prior written consent specifying the manner in which it may be done and by persons authorized by Landlord. All table or floor lamps will have timers to ensure that they are turned off after business hours. All bulbs in fixtures (other than 2 x 4 fluorescent) will be provided by Landlord at Tenant cost.

Q. Landlord reserves the right from time to time to select the name of the building and project of which the leased premises are a part. Tenant may only utilize the name of the building or project as part of its business name with prior written consent of Landlord.

R. Any air condensing system servicing the server/computer room of the Demised Premises shall be an air-cooled system only. Tenant shall obtain Landlord's prior written consent before installing any new air-cooled system.

S. Landlord shall have the right to regulate the dates and times for tenants to move into and out of the Building. Tenant shall obtain Landlord's prior approval of a date and time for its move into or out of the Demised Premises. Any move-in or move-out shall occur after 5:00 P.M. if on a weekday, or on weekend, at a date and time that must be approved by Landlord at least two (2) business days in advance of the desired date. Tenant shall pay, upon receipt of invoice(s), amounts invoiced by Landlord for the cost of repairs and/or replacements for damage to the Demised Premises, Building or common areas that upon inspection Landlord in its sole discretion determines was caused by Tenant or its agents. Tenant agrees to indemnify, defend and hold Landlord harmless against any liability for injuries (or death) to persons or damage to property arising out of said moving activities.

EXHIBIT "D"
CLEANING SCHEDULE

The Building is to be cleaned in accordance with the below stated specifications. These specifications represent the minimum acceptable standard to the Landlord and are subject to change as conditions require:

COMMON AREAS

(Building Entries, Lobbies, Stairwells, Elevators, & Corridors)

Daily

1. Empty all waste containers and reline as needed and dispose of in designated area.
2. Clean and disinfect all drinking fountains.
3. Thoroughly dust all furniture and horizontal surfaces.
4. Spot clean fingerprints, smudges, etc. from door glass and door push plates.
5. Sweep and wet mop all resilient floors (tile, marble, wood, etc.) with a neutral cleaning solution.
6. Vacuum any carpeted areas or runners thoroughly.

OFFICE AND CONFERENCE ROOM AREAS

Daily

1. Empty all waste containers and reline as needed and dispose of in designated area.
2. Take all cardboard boxes marked “Trash” to dumpster.
3. Dust all open horizontal surfaces completely
   (Surfaces that are covered with paper, charts, personal items, etc. will not be dusted unless removed by owner).
4. Spot clean spills, smudges, coffee rings, etc., from furniture.
5. Spot clean entrance and partition glass as necessary.
6. Wipe all door kick plates.
7. Sweep and wet mop all resilient floors (tile, marble, wood, etc.) with a neutral cleaning solution.
8. Vacuum all carpeted areas or runners thoroughly and reposition furniture.
9. Turn off all lights and secure door.

RESTROOMS

Daily

1. Empty all waste containers and dispose of in designated area.
2. Clean and polish all wall and cabinet mirrors.
3. Clean and sanitize toilet bowl, urinals, and sinks.
4. Clean and polish all chrome and stainless steel.
5. Spot clean all partitions.
6. Replenish towels, toilet tissue, hand soap, and sanitary napkin dispensers.
7. Pour disinfect water solution into restroom floor drains.
8. Sweep and mop with disinfectant all resilient floors (tile, marble, wood, etc.) with a germicidal solution.
9. Vacuum any carpeted areas or runners thoroughly.

CAFETERIA AND/OR COFFEE STATIONS

Daily

1. Empty all waste containers and dispose of in designated area.
2. Wipe down all tabletops, counter tops and surrounding horizontal surfaces.
3. Clean inside and outside of microwave(s) of reasonable spillage and debris.
4. Wash and disinfect sinks.
5. Replenish all paper dispensers.
6. Sweep and wet mop resilient floors (tile, marble, wood, etc.) with a germicidal solution.
7. Vacuum all carpeted areas or runners thoroughly.

Monthly (All Areas)

1. Clean and sterilize telephones.
2. Wash and remove all fingerprints, smudges, etc., around light switches, doorjambs, door push plates, etc.
3. Brush clean all lavatory partitions.
4. Wipe vertical surfaces completely.
5. High dust cobwebs from ceiling areas, window areas, corner areas, high & low shelves, etc., up to 84 inches

Quarterly (All Areas)

1. Dust heat ducts and ceiling vents as needed.
2. Vacuum all carpeted edges.
3. Vacuum fabric-type furniture.

GEMPHIRE THERAPEUTICS INC.

FOURTH AMENDMENT TO NOTE PURCHASE AGREEMENT AND CONVERTIBLE PROMISSORY NOTES

THIS FOURTH AMENDMENT TO NOTE PURCHASE AGREEMENT AND CONVERTIBLE PROMISSORY NOTES (this ***"Fourth Amendment"***) is made effective as of this 26th day of April 2016 (the ***"Fourth Amendment Date"***), by and among GEMPHIRE THERAPEUTICS INC., a Delaware corporation (the ***"Company"***), and the purchasers of the Company's Convertible Promissory Notes identified on the signature page attached hereto (the ***"Purchasers"***).

BACKGROUND

The Company and the Purchasers entered into that certain Note Purchase Agreement dated as of July 31, 2015, as amended by the First Amendment to Note Purchase Agreement and Convertible Promissory Notes dated December 10, 2015 (the ***"First Amendment"***), the Second Amendment to Note Purchase Agreement and Convertible Promissory Notes dated March 27, 2016 (the ***"Second Amendment"***) and the Third Amendment to Note Purchase Agreement and Convertible Promissory Notes dated April 14, 2016 (the ***"Third Amendment"*** and collectively, the ***"Purchase Agreement"***). Pursuant to the terms and conditions of the Purchase Agreement, the Company issued those certain Convertible Promissory Notes (collectively, the ***"Notes"***, and each a ***"Note"***) to such Purchasers. The Company and the Purchasers now wish to amend the Purchase Agreement and the Notes as provided herein.

NOW, THEREFORE, in consideration of these premises and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company and the Purchasers hereby agree to amend the Purchase Agreement and the Notes as follows:

TERMS AND CONDITIONS

1. AMENDMENT TO SECTION 1.5 OF THE PURCHASE AGREEMENT. Section 1.5 of the Purchase Agreement is hereby deleted in its entirety and replaced with the following:

"**1.5 Conversion upon Change in Control or Public Transaction**. If at any time prior to the Qualified Financing, the Company's Board of Directors approves the sale of all or substantially all of the Company's assets or stock, or a merger, consolidation or any other business combination transaction resulting in the holders of capital stock of the Company immediately before such transaction holding less than 50% of the capital stock of the surviving entity in such transaction (a ***"Change in Control"***) or a Public Transaction, then immediately prior to the closing of such transaction, (i) One Hundred Percent (100%) of the outstanding principal balance of, plus (ii) the accrued but unpaid interest on, each Note (collectively, the ***"CIC / IPO Note Value"***) shall automatically convert into

that number of fully paid and non-assessable shares of the Company's Common Stock determined by dividing the CIC / IPO Note Value by the CIC / IPO Note Conversion Price (as defined in Section 2(c) of the Notes), rounded down to the nearest whole share."

2. AMENDMENT TO SECTION 2(B) OF THE NOTES. Section 2(b) of each existing Note is hereby deleted and replaced with the following:

"**(b) Conversion upon Change in Control or Public Transaction.** If at any time prior to the Qualified Financing, the Company's Board of Directors approves a Change in Control or a Public Transaction, then immediately prior to the closing of such transaction, (i) One Hundred Percent (100%) of the outstanding principal balance of, plus (ii) the accrued but unpaid interest on, this Note (collectively, the ***"CIC / IPO Note Value"***) shall automatically convert into that number of fully paid and non-assessable shares of the Company's Common Stock determined by dividing the CIC / IPO Note Value by the CIC / IPO Note Conversion Price (as defined below), rounded down to the nearest whole share."

3. AMENDMENT TO SECTION 2(C) OF THE NOTES. A new Section 2(c) is hereby added to each Note, as follows:

"**(c)** The ***"CIC / IPO Note Conversion Price"*** shall initially be $2.15; provided, however, that (i) if at any time or from time to time on or after the Fourth Amendment Date the Company effects a subdivision of the outstanding Common Stock, or effects a recapitalization, reclassification, split-up or other transaction having substantially the same effect as a subdivision of the outstanding Common Stock, the CIC / IPO Note Conversion Price in effect immediately before that subdivision shall be proportionately decreased; and (ii) if at any time or from time to time on or after the Fourth Amendment Date the Company combines the outstanding shares of Common Stock into a smaller number of shares, or effects a recapitalization, reclassification, or other transaction having substantially the same effect as a combination of the outstanding Common Stock into a smaller number of shares, the CIC / IPO Note Conversion Price in effect immediately before the combination shall be proportionately increased, in each case, with such adjustment to be effective at the close of business on the date the subdivision or combination becomes effective, and following such time all references to the CIC / IPO Note Conversion Price shall mean the CIC / IPO Note Conversion Price as so adjusted."

4. NOTICE TO TRANSFEREES. Each Purchaser hereby covenants and agrees to provide any transferee of such Purchaser's Note with a copy of this Fourth Amendment.

5. CONSTRUCTION. Unless otherwise defined herein, capitalized terms shall have the meanings set forth in the Purchase Agreement. The terms of this Fourth Amendment amend and modify the Purchase Agreement and each Note, as if fully set forth in the Purchase Agreement and each Note. If there is any conflict between the terms, conditions and obligations

of this Fourth Amendment and the Purchase Agreement or the Notes, this Fourth Amendment's terms, conditions and obligations shall control. All other provisions of the Purchase Agreement and the Notes not specifically modified by this Fourth Amendment are preserved.

6. **COUNTERPARTS**. This Fourth Amendment may be executed in one or more counterparts, each of which shall constitute an original, and all of which together shall constitute one and the same instrument.

7. **FACSIMILE SIGNATURE**. This Fourth Amendment may be executed by facsimile or .pdf signature.

SIGNATURES ON THE FOLLOWING PAGE

IN WITNESS WHEREOF, this Fourth Amendment to Note Purchase Agreement and Convertible Promissory Notes is made effective as of the date first set forth above.

THE COMPANY:

GEMPHIRE THERAPEUTICS INC.

By: /s/ Mina P. Sooch
Name: Mina P. Sooch
Title: President and Chief Executive Officer

SIGNATURES ON THE FOLLOWING PAGE

THE INVESTORS:

The Charles L. Bisgaier Trust
Dated November 8, 2000

/s/ Charles Bisgaier
Name: Charles Bisgaier
Its: Trustee

The Margaret M. McShane
Revocable Trust

Name: Margaret McShane
Its: Trustee

Tushar Amin

/s/ Andy Sassine
Andy Sassine

/s/ Randall Rabourn
Randall Rabourn

W3 Holdings, Inc.

/s/ Kevin Williams
Name: Kevin Williams
Its: President

Arvinder S. Sooch Trust
Dated September 20, 2006

/s/ Arvinder Sooch
Name: Arvinder Sooch
Its: Trustee

2015 Sandhu Family Trust for
Rohan Sandhu

/s/ Jasdeep S. Sandhu
Name: Jasdeep S. Sandhu
Its: Trustee

Glenn D. Steeg Trust
Dated April 23, 2003

/s/ Glenn Steeg
Name: Glenn Steeg
Its: Trustee

SIGNATURE PAGE TO FOURTH AMENDMENT TO NOTE PURCHASE AGREEMENT AND CONVERTIBLE PROMISSORY NOTES

Patrick J. Mullen

/s/ Edward Lowenschuss
Edward Lowenschuss

William H. Johnson

Robert F. Schoeni and Gretchen Spreitzer

/s/ Robert F. Schoeni
Robert F. Schoeni

/s/ Gretchen Spreitzer
Gretchen Spreitzer

Daybreak Investments, LLC

/s/ Nathaniel Dalton
Name: Nathaniel Dalton
Its: Manager

Allen Batteau and Susan R. Miller

/s/ Allen Batteau
Allen Batteau

/s/ Susan R. Miller
Susan R. Miller

Amherst Fund II, LLC

/s/ Matt Turner
Name: Matt Turner
Its: President

R. Lawrence Leigh Trust

/s/ Lawrence Leigh
Name: Lawrence Leigh
Its: Trustee

Ravinder S. Sandhu and Amy K. Gill-Sandhu

/s/ Ravinder S. Sandhu
Ravinder S. Sandhu

/s/ Amy K. Gill-Sandhu
Amy K. Gill-Sandhu

Eric Adamy Trust

/s/ Eric Adamy
Name: Eric Adamy
Its: Trustee

/s/ Christopher Gutek
Christopher Gutek

Trout Creek Ventures, LP

Name: Paul D'Amato
Its: Managing Director

Western Michigan University Research Foundation acting on behalf of Biosciences Research & Commercialization Center (BRCC)

Name: Patti VanWalBeck

Grand Angels Venture Fund II, LLC

Name: Paul D'Amato
Its: Trustee

/s/ Robert Sigler
Robert Sigler

Jatinder-Bir Sandhu and Roop Sandhu

/s/ Jatinder-Bir Sandhu
Jatinder-Bir Sandhu

/s/ Roop Sandhu
Roop Sandhu

2015 Sandhu Family Trust for Rajan Sandhu

/s/ Jasdeep S. Sandhu
Name: Jasdeep S. Sandhu
Its: Trustee

Chain S. Sandhu IRRV Trust for Children of Jasdeep S. Sandhu

/s/ Chain S. Sandhu
Name: Chain S. Sandhu
Its: Trustee

Chain S. Sandhu IRRV Trust for Children of Jatinder-Bir S. Sandhu

/s/ Chain S. Sandhu
Name: Chain S. Sandhu
Its: Trustee

/s/ Chain S. Sandhu
Chain S. Sandhu

/s/ Charles Stoddard
Charles Stoddard

Mark A. Murray Trust Dated January 23, 2015

Name: Mark A. Murray
Its: Trustee

Christopher Branoff Trust U/A/D 6-26-2000

/s/ Christopher Branoff
Name: Christopher Branoff
Its: Trustee

/s/ Michele C. Johnson
Michele C. Johnson

Detroit Innovate Fund I, L.P.

Name: Patricia Glaza
Its: Managing Director

BWA GEMPHIRE INVESTMENT GROUP II, LLC

/s/ Kenneth W. Kousky
Name: Kenneth W. Kousky
Its: Manager of the SPE

SIGNATURE PAGE TO FOURTH AMENDMENT TO NOTE PURCHASE AGREEMENT AND CONVERTIBLE PROMISSORY NOTES

P. Kent Hawryluk Revocable Trust

/s/ P. Kent Hawryluk
Name: P. Kent Hawryluk
Its: Trustee

/s/ Amy Samuelson
Amy Samuelson

Bisgaier Family, LLC

/s/ Charles Bisgaier
Name: Charles Bisgaier
Its: Manager

Brio Capital Fund I L.L.C.

/s/ James A. Sorboro
Name: James A. Sorboro
Its: Principal

/s/ Dakshesh S. Patel
Dakshesh S. Patel

/s/ David A. Perkins
David A. Perkins

/s/ David R. Fischell
David R. Fischell

/s/ Dena Marie Bisgaier
Dena Marie Bisgaier

/s/ Douglas Flege
Douglas Flege

Jeffrey and Michelle Mathiesen

/s/ Jeffrey Mathiesen
Jeffrey Mathiesen

/s/ Catherine Sigler
Catherine Sigler

/s/ Michelle Mathiesen
Michelle Mathiesen

SIGNATURE PAGE TO FOURTH AMENDMENT TO NOTE PURCHASE AGREEMENT AND CONVERTIBLE PROMISSORY NOTES

/s/ Nainoor Thakore
Nainoor Thakore

/s/ Pedro Lichtinger
Pedro Lichtinger

Reynold Homan and Nelva J.
Homan Revocable Living Trust

/s/ Reynold Homan
Name: Reynold Homan
Its: Trustee

/s/ Roger W. Kleppe
Roger W. Kleppe

/s/ Sandra Lynn Drake
Sandra Lynn Drake

/s/ Stanley Bisgaier
Stanley Bisgaier

/s/ Steven Zelkowitz
Steven Zelkowitz

The Beverly Selnick Revocable
Living Trust

/s/ Beverley Selnick
Name: Beverley Selnick
Its: Trustee

/s/ Tim A. Fischell
Tim A. Fischell

Vishal J. Bhagat

Mary C. Vandewiele Trust U/A
Dated 10-13-04

Name: Mary C. Vandewiele
Its: Trustee

SIGNATURE PAGE TO FOURTH AMENDMENT TO NOTE PURCHASE AGREEMENT AND CONVERTIBLE PROMISSORY NOTES

BAM Investments, LLC

Name: William J. Rauwerdink
Its: Managing Member

Capital Midwest Fund III, LP

/s/ Alvin Vitangcol
Name: Alvin Vitangcol
Its: General Partner

Excel Venture Fund II, L.P.

Name: Steven Gullans
Its: Manager

Michael Connor Family Trust UA
Nov 10, 2010

/s/ Lindsay Connor
Name: Lindsay Connor
Its: Portfolio Manager

Rebecca and Erik Bakker-Arkema

/s/ Rebecca Bakker-Arkema
Rebecca Bakker-Arkema

/s/ Erik Bakker-Arkema
Erik Bakker-Arkema

JSI, 2 LLC

/s/ Jasdeep S. Sandhu
Name: Jasdeep S. Sandhu
Its: Member

SIGNATURE PAGE TO FOURTH AMENDMENT TO NOTE PURCHASE AGREEMENT AND CONVERTIBLE PROMISSORY NOTES

Exhibit 10.15

GEMPHIRE THERAPEUTICS INC.

NON-EMPLOYEE DIRECTOR COMPENSATION POLICY

Each member of the Board of Directors (the ***"Board"***) who is not also serving as an employee of Gemphire Therapeutics Inc. (***"Gemphire Therapeutics"***) or any of its subsidiaries (each such member, an ***"Eligible Director"***) will receive the compensation described in this Non-Employee Director Compensation Policy for his or her Board service following the closing of the initial public offering of Gemphire Therapeutics' common stock (the ***"IPO"***).

This Non-Employee Director Compensation Policy will be effective upon the date of the underwriting agreement between Gemphire Therapeutics and the underwriters managing the initial public offering of the common stock of Gemphire Therapeutics (the "***Common Stock***"), pursuant to which the Common Stock is priced in the IPO. This policy may be amended at any time in the sole discretion of the Board or the Compensation Committee of the Board.

ANNUAL CASH COMPENSATION

The annual cash compensation amount set forth below is payable in equal quarterly installments, payable in arrears on the last day of each fiscal quarter in which the service occurred. If an Eligible Director joins the Board or a committee of the Board at a time other than effective as of the first day of a fiscal quarter, each annual retainer set forth below will be pro-rated based on days served in the applicable fiscal year, with the pro-rated amount paid for the first fiscal quarter in which the Eligible Director provides the service, and regular full quarterly payments thereafter. All annual cash fees are vested upon payment.

1. Annual Board Service Retainer:

a. All Eligible Directors (other than Chairman of the Board): $50,000

2. Annual Committee Chair Service Retainer:

a. Chairman of the Audit Committee: $15,000

b. Chairman of the Compensation Committee: $7,500

c. Chairman of the Nominating & Corporate Governance Committee: $5,000

3. Annual Committee Member (other than Committee Chair) Service Retainer:

a. Member of the Audit Committee: $5,000

b. Member of the Compensation Committee: $5,000

c. Member of the Nominating & Corporate Governance Committee: $5,000

EQUITY COMPENSATION

The equity compensation set forth below will be granted under the Gemphire Therapeutics Amended and Restated 2015 Equity Incentive Plan (the ***"Plan"***), subject to the Gemphire Therapeutics stockholders' approval of the Plan. All stock options granted under this policy will be nonstatutory stock

options, with an exercise price per share equal to 100% of the Fair Market Value (as defined in the Plan) of the underlying Common Stock on the date of grant, and a term of ten years from the date of grant (subject to earlier termination in connection with a termination of service as provided in the Plan).

On the date of the Eligible Director's initial election to the Board (or, if such date is not a market trading day, the first market trading day thereafter), the Eligible Director will be automatically, and without further action by the Board or Compensation Committee of the Board, granted a stock option for 60,000 shares. For the avoidance of doubt, Eligible Directors who are serving on the Board at the effective date of the IPO will not be automatically awarded an initial grant hereunder. The shares subject to each stock option will vest in a series of 48 equal monthly installments, such that the option is fully vested on the fourth anniversary of the date of grant, subject to the Eligible Director's Continuous Service (as defined in the Plan) through each such vesting date and will vest in full upon a Change in Control (as defined in the Plan).

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption “Experts” and the use of our report dated March 18, 2016 (except for the effects of the reverse stock split described in Note 14, as to which the date is May 6, 2016) in the Registration Statement (Form S-1 No. 333-210815) and related Prospectus of Gemphire Therapeutics Inc. dated June 13, 2016.

/s/ Ernst & Young LLP
Detroit, Michigan
June 13, 2016