

May 3, 2016

VIA EDGAR

U.S. Securities and Exchange Commission
Division of Corporation Finance
100 F. Street, N.E.
Washington, D.C. 20549

Attention: Suzanne Hayes
Alexandra M. Ledbetter
Lilyanna Peyser
Sharon Blume
Sasha Parikh

**Re: Gemphire Therapeutics Inc.
Registration Statement on Form S-1
Registration No. 333-210815**

Ladies and Gentlemen:

On behalf of our client, Gemphire Therapeutics Inc. (the "**Company**"), this letter sets forth the response to a comment from the staff (the "**Staff**") of the Securities and Exchange Commission (the "**Commission**") received by letter dated May 2, 2016 relating to the Company's registration statement on Form S-1, originally confidentially submitted with the Commission on September 11, 2015, resubmitted to the Commission on January 19, 2016 and subsequently filed by the Company with the Commission on April 18, 2016 (File No. 333-210815) (the "**Registration Statement**").

In this letter, we have recited the comment from the Staff in italicized, bold type and have followed the comment with the Company's response.

Critical Accounting Policies and Estimates
Stock-Based Compensation
Common Stock Valuation, page 78

1. ***We noted the use of the potential Series B convertible preferred stock financing (potential Series B financing) in your September 18 and 30, 2015 valuations. Please provide us additional information with regards to the potential Series B financing so we may better understand your valuations. In this regard, tell us:***
 - ***why it is appropriate to include the potential Series B financing in both of your September 2015 valuations;***
 - ***when the discussions began for this financing round, when you expect to complete the financing, and any difficulties you are facing in completing the financing;***
 - ***with whom are you discussing the potential financing with (i.e. new investors, prior investors, related parties);***

350 E. Michigan Avenue, Suite 300 · Kalamazoo, Michigan 49007
Detroit · Ann Arbor · Bloomfield Hills · Chicago · Kalamazoo · Lansing

-
- ***the economic rights you are anticipating granting to the Series B preferred stock holders in relation to the rights of other equity holders; and***
 - ***your intention with respect to providing disclosure regarding the potential Series B financing in your registration statement.***

In response to the Staff's comment, the Company advises the Staff that the Company and its independent third-party valuation firm considered the Series B scenario as one factor in the September 2015 valuations because, at such time, the Company was in discussions, which began in April 2015, with several new venture capital investors regarding a potential Series B financing.

In the September 2015 valuations, the Company and its independent third-party valuation firm considered the possibilities that the Company could (1) complete a Series B financing prior to publicly filing a registration statement for its contemplated initial public offering (the "**IPO**") and, following such Series B financing, pursue an IPO, (2) complete a Series B financing and not pursue an IPO or (3) remain private without completing a Series B financing. At the time of the September 2015 valuations, the Company expected to complete a Series B financing prior to the end of 2015. However, as a result of a subsequent pronounced downturn in the biotechnology market, the Company did not complete the Series B financing as previously anticipated. Moreover, terms of a potential Series B financing, including the economic rights that would have been granted to any potential Series B stockholder, were never set, as the Company was negotiating at arms-length and did not receive a term sheet from a potential lead investor (for purposes of the September 2015 valuations, it was assumed that the economic rights granted to Series B stockholders would be identical to the rights of the holders of the Company's Series A preferred stock). In addition, it is important to note that taking into consideration a potential Series B financing resulted in a higher fair value determination than would have been made had that potential financing not been taken into consideration.

The Company advises the Staff that it does not intend to pursue a potential Series B financing or any other financing outside of the Company's IPO at this time. Therefore, the Company respectfully submits to the Staff that it will not be including disclosure regarding a potential Series B financing, or any other potential financing, in the Registration Statement, but rather will be appropriately disclosing details regarding the Company's IPO and all financings that have been completed by the Company to date.

If you have any questions or comments concerning this response or the Revised Registration Statement, please do not hesitate to call Phillip D. Torrence at (269) 337-7702.

Yours sincerely,

/s/ Phillip D. Torrence

Phillip D. Torrence

Cc: Gemphire Therapeutics Inc.
Mina Sooch
Jeffrey S. Mathiesen
David Lowenschuss