

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

WASHINGTON, D.C. 20549

**FORM S-8
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

Gemphire Therapeutics Inc.

(Exact name of registrant as specified in its charter)

<p>Delaware (State or other jurisdiction of incorporation or organization)</p> <p>43334 Seven Mile Road, Suite 1000 Northville, Michigan (Address of principal executive offices)</p>	<p>47-2389984 (I.R.S. Employer Identification Number.)</p> <p>48167 (Zip code)</p>
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**Gemphire Therapeutics Inc. Amended and Restated 2015 Equity Incentive Plan
Gemphire Therapeutics Inc. 2016 Employee Stock Purchase Plan**
(Full title of the plan)

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)

Copies to:

Phillip D. Torrence, Esq.
Honigman Miller Schwartz and Cohn LLP
350 East Michigan Avenue, Suite 300
Kalamazoo, Michigan 49007-3800
(269) 337-7700

David Lowenschuss, Esq.
Chief Legal Officer and Secretary
Gemphire Therapeutics Inc.
43334 Seven Mile Road, Suite 1000
Northville, Michigan 48167
(248) 681-9815

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. (Check One):

Large accelerated filer Accelerated filer

Non-accelerated filer (Do not check if a smaller reporting company) Smaller reporting company

CALCULATION OF REGISTRATION FEE

Title of securities to be registered	Amount to be registered(1)	Proposed maximum offering price per share	Proposed maximum aggregate offering price	Amount of registration fee
Common Stock, par value \$0.001 per share				
— Amended and Restated 2015 Equity Incentive Plan	2,400,000(2)	\$8.90-\$8.93(3)	\$21,423,914.34	\$2,157.40
— 2016 Employee Stock Purchase Plan	150,000(4)	\$7.57(5)	\$1,135,500	\$114.35
Total	2,550,000		\$22,559,414.34	\$2,271.75

- (1) Pursuant to Rule 416(a) under the Securities Act of 1933, as amended (the "Securities Act"), this Registration Statement shall also cover any additional shares of the Registrant's Common Stock ("Common Stock") that become issuable under the plans by reason of any stock dividend, stock split, recapitalization or other similar transaction.
- (2) Represents 2,130,478 shares of Common Stock subject to outstanding awards under the Amended and Restated 2015 Equity Incentive Plan (the "A&R 2015 Plan") and 269,522 shares of Common Stock reserved for future issuance under the A&R 2015 Plan. The A&R 2015 Plan provides that an additional number of shares will automatically be added to the shares authorized for issuance under the A&R 2015 Plan on January 1 of each calendar year, from January 1, 2017 through January 1, 2026. The number of shares added each year will be equal to 20% of the fully-diluted shares of Common Stock outstanding as of December 31 of the preceding calendar year or such lesser number of shares of Common Stock as is determined by the Registrant's board of directors (the "Board") for the applicable year.
- (3) This estimate is made pursuant to Rule 457(h) and Rule 457(c) of the Securities Act solely for purposes of calculating the registration fee, and is based on (a) \$8.93, the weighted-average exercise price for outstanding options granted pursuant to the A&R 2015 Plan as of the date of this Registration Statement and (b) \$8.90, the average of the high and low prices of the Registrant's common stock as reported on the NASDAQ Global Market on August 5, 2016 for shares of Common Stock reserved for future issuance under the A&R 2015 Plan. The chart below details the calculation of the registration fee:

Securities	Number of shares	Offering price per share	Aggregate offering price	Amount of registration fee
Shares issuable upon the exercise of outstanding options granted pursuant to the A&R 2015 Plan	2,130,478	\$8.93 (3)(a)	\$19,025,168.54	\$1,915.84
Shares reserved for future issuance under the A&R 2015 Plan (3)	269,522	\$8.90 (3)(b)	\$2,398,745.80	\$241.56
Total	2,400,000	\$8.90 - \$8.93	\$21,423,914.34	\$2,157.40

- (4) Represents 150,000 shares of Common Stock reserved for future grant under the 2016 Employee Stock Purchase Plan (the "2016 ESPP"). The 2016 ESPP provides that an additional number of shares will automatically be added to the shares authorized for issuance under the 2016 ESPP on January 1 of each calendar year, from January 1, 2017 through January 1, 2026. The number of shares of Common Stock added each year will be equal to the lesser of: (a) 1.0% of the total number of shares of capital stock outstanding on December 31 of the preceding calendar year and (b) 75,000 shares of Common Stock.
- (5) This estimate is made pursuant to Rule 457(h) and Rule 457(c) of the Securities Act solely for purposes of calculating the registration fee, and is based on \$8.90, the average of the high and low prices of the Registrant's common stock as reported on the NASDAQ Global Market on August 5, 2016, multiplied by 85%, which is the percentage of the trading price per share applicable to purchasers under the 2016 ESPP.
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PART I

INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS

The documents containing the information required in this Part I will be delivered to the participants in the Plan, as specified in Rule 428(b)(1) of the Securities Act. Such documents are not required to be filed with the Commission as part of this Registration Statement.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents By Reference.

The following documents filed with the Commission by the Registrant are hereby incorporated by reference in this Registration Statement:

(a) the Registrant's prospectus dated August 4, 2016, filed with the Commission on August 8, 2016 pursuant to Rule 424(b) under the Securities Act relating to the Registration Statement on Form S-1, as amended (File No. 333-210815), which contains audited financial statements for the Registrant's latest fiscal year for which such statements have been filed; and

(b) the description of the Registrant's common stock contained in the Registrant's Registration Statement on Form 8-A (File No. 001-37809) filed with the Commission on June 20, 2016 under Section 12(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), including any amendments or reports filed for the purpose of updating such description.

In addition, all documents the Registrant subsequently files pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the filing of this Registration Statement and prior to the filing of a post-effective amendment which indicates that all securities offered hereby have been sold or which deregisters all securities covered hereby then remaining unsold are incorporated by reference in this Registration Statement and are a part hereof from the date of filing of such documents. Notwithstanding anything herein, the Registrant is not incorporating by reference any information furnished under Item 2.02 or Item 7.01 of any Current Report on Form 8-K, unless, and to the extent, specified in any such Current Report on Form 8-K.

Any statement herein or contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained herein, or in any subsequently filed document, which also is or is deemed to be incorporated by reference herein, modifies or supersedes such prior statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute part of this Registration Statement.

Item 4. Description of Securities.

Not applicable.

Item 5. Interests of Named Experts and Counsel.

Not applicable.

Item 6. 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.

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 officer or director 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.

Item 7. Exemption from Registration Claimed.

Not applicable.

Item 8. Exhibits.

<u>Exhibit No.</u>	<u>Description</u>
4.1	Third Amended and Restated Certificate of Incorporation of the Registrant, incorporated by reference to Exhibit 3.2 to the Registrant's Registration Statement on Form S-1 filed on June 13, 2016 (Registration No. 333-210815)
4.2	Amended and Restated Bylaws of the Registrant, incorporated by reference to Exhibit 3.4 to the Registrant's Registration Statement on Form S-1 filed on June 13, 2016 (Registration No. 333-210815)
4.3	Form of common stock certificate, incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1 filed on June 13, 2016 (Registration No. 333-210815)
5.1*	Opinion of Honigman Miller Schwartz and Cohn LLP
23.1*	Consent of Independent Registered Public Accounting Firm
23.2*	Consent of Honigman Miller Schwartz and Cohn LLP (included in its opinion filed as Exhibit 5.1 to this Registration Statement)
24.1*	Power of Attorney (included after the signature of the Registrant contained on Signature Page of this Registration Statement)
99.1	Amended and Restated 2015 Equity Incentive Plan, incorporated by reference to Exhibit 10.3 to the Registrant's Registration Statement on Form S-1 filed on June 13, 2016 (Registration No. 333-210815)
99.2	2016 Employee Stock Purchase Plan, incorporated by reference to Exhibit 10.4 to the Registrant's Registration Statement on Form S-1 filed on June 13, 2016 (Registration No. 333-210815)

Item 9. Undertakings.

(a) The Registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act;

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(ii) To reflect in the prospectus any facts or events arising after the effective date of the Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the Registration Statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective Registration Statement;

(iii) to include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement;

provided, however, that paragraphs (a)(1)(i) and (a)(1)(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or 15(d) of the Exchange Act that are incorporated by reference in the Registration Statement; and

(2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offer thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(b) The Registrant hereby undertakes that, for the purpose of determining any liability under the Securities Act, each filing of the Registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the Registration Statement 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) 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 Commission 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 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.

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SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and 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 August 9, 2016.

GEMPHIRE THERAPEUTICS INC.

By: /s/ Mina Sooch

Mina Sooch

President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby 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 in any and all capacities, to sign the Registration Statement on Form S-8 of Gemphire Therapeutics Inc., and any or all amendments (including 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 of 1933, this Registration Statement on Form S-8 has been signed by the following persons in the capacities and on the dates indicated.

<u>SIGNATURE</u>	<u>TITLE</u>	<u>DATE</u>
<u>/s/ Mina Sooch</u> Mina Sooch	President and Chief Executive Officer (Principal Executive Officer)	August 9, 2016
<u>/s/ Jeffrey S. Mathiesen</u> Jeffrey S. Mathiesen	Chief Financial Officer (Principal Financial and Accounting Officer)	August 9, 2016
<u>/s/ Charles L. Bisgaier, Ph.D.</u> Charles L. Bisgaier, Ph.D.	Chief Scientific Officer and Chairman of the Board of Directors	August 9, 2016
<u>/s/ Steve Gullans, Ph.D.</u> Steve Gullans, Ph.D.	Member of the Board of Directors	August 9, 2016
<u>/s/ P. Kent Hawryluk</u> P. Kent Hawryluk	Member of the Board of Directors	August 9, 2016
<u>/s/ Kenneth Kousky</u> Kenneth Kousky	Member of the Board of Directors	August 9, 2016
<u>/s/ Pedro Lichtinger</u> Pedro Lichtinger	Member of the Board of Directors	August 9, 2016
<u>/s/ Andrew Sassine</u> Andrew Sassine	Member of the Board of Directors	August 9, 2016

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EXHIBIT INDEX

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* Filed herewith

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HONIGMAN

Honigman Miller Schwartz and Cohn LLP
Attorneys and Counselors

(269) 337-7700
Fax: (269) 337-7701
www.honigman.com

August 9, 2016

Gemphire Therapeutics Inc.
43334 Seven Mile Road, Suite 1000
Northville, Michigan 48167

RE: Registration Statement on Form S-8

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-8 (the "Registration Statement") for the registration under the Securities Act of 1933, as amended (the "Securities Act"), of (a) a maximum of 2,400,000 shares (the "Plan Shares") of the Company's common stock, par value \$0.001 per share (the "Common Stock"), reserved for issuance under the Company's Amended and Restated 2015 Equity Incentive Plan (the "2015 Plan") and (b) a maximum of 150,000 shares (the "ESPP Shares" and, together with the Plan Shares, the "Shares") of Common Stock reserved for issuance under the Company's 2016 Employee Stock Purchase Plan (the "2016 ESPP").

Based upon our examination of such documents and other matters as we deem relevant, we are of the opinion that (1) the Shares are duly authorized, and (2) the Plan Shares, when issued and sold by the Company in accordance with the 2015 Plan and the awards thereunder, and the ESPP Shares, when issued and sold by the Company in accordance with the 2016 ESPP, 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. 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

350 East Michigan Avenue · Suite 300 · Kalamazoo, Michigan 49007-3800
Detroit · Ann Arbor · Bloomfield Hills · Chicago · Kalamazoo · Lansing

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (Form S-8) pertaining to the Amended and Restated 2015 Equity Incentive Plan and 2016 Employee Stock Purchase Plan of Gemphire Therapeutics Inc. 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), with respect to the financial statements of Gemphire Therapeutics Inc. (which contains an explanatory paragraph describing conditions that raise substantial doubt about the Company's ability to continue as a going concern as described in Note 1 to the financial statements), included in Registration Statement No. 333-210815 on Form S-1 filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP
Detroit, Michigan
August 5, 2016
