STEMLINE THERAPEUTICS INC Form S-3 August 08, 2017

Use these links to rapidly review the document <u>Table of Contents</u>

Table of Contents

As filed with the Securities and Exchange Commission on August 8, 2017.

Registration No. 333-

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-3

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

STEMLINE THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware or other jurisdic

(State or other jurisdiction of incorporation or organization)

45-0522567 (I.R.S. Employer Identification Number)

750 Lexington Avenue Eleventh Floor New York, New York 10022 (646) 502-2311

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Ivan Bergstein, M.D. Chairman, President and Chief Executive Officer Stemline Therapeutics, Inc. 750 Lexington Avenue Eleventh Floor New York, New York 10022 (646) 502-2311

(Name, address, including zip code, and telephone number, including area code, of agent for service)

The Commission is requested to send copies of all communications to:

Matthew W. Mamak, Esq. Alston & Bird LLP 90 Park Avenue New York, New York 10016 Telephone: (212) 210-9400

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this Registration Statement.

If the only securities being registered on this form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. 0

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, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. \circ

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please 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 registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. o

If this form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. o

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

Large accelerated filer o

Accelerated filer ý

Non-accelerated filer o (Do not check if a smaller reporting

company)

Smaller reporting company o

Emerging growth

company ý If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ý

CALCULATION OF REGISTRATION FEE

| Title of Each Class Of Securities To Be Registered(1) | Proposed Maximum Aggregate Offering Price(2) | Amount of Registration Fee(3) |
|--|--|----------------------------------|
| 10 be kegistereu(1) | Price(2) | Registration ree(5) |
| Common Stock, \$0.0001 par value per share(4) | \$ | \$ |
| Preferred Stock, \$0.0001 par value per share(4) | | |
| Warrants | | |
| Debt Securities | | |
| Units(5) | | |

Total

\$175,000,000 \$20,282.50

(1)An indeterminate aggregate initial offering price or number of the securities of each identified class is being registered as may from time to time be offered at indeterminate prices, along with an indeterminate number of securities that may be issued upon exercise, settlement, exchange or conversion of securities offered hereunder. Separate consideration may or may not be received for securities that are issuable upon exercise, settlement, conversion or exchange of other securities or that are issued in units with other securities registered hereunder. (2) Certain information as to each class of securities to be registered is not specified, in accordance with General Instruction II.D of Form S-3 under the Securities Act. (3) The registration fee has been calculated in accordance with Rule 457(o) under the Securities Act of 1933, as amended. (4)Includes an indeterminate number of shares of common stock or preferred stock as may be issued by the registrant upon exercise, conversion or exchange of any securities that provide for such issuance, or that may from time to time become issuable by reason of any stock split, stock dividend or similar transaction, for which no separate consideration will be received by registrant. (5) Each unit will be issued under a unit agreement and will represent an interest in two or more other securities, which may or may not be separable from one another.

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.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and we are not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to Completion Dated August 8, 2017

PROSPECTUS

\$175,000,000

Stemline Therapeutics, Inc.

Common Stock Preferred Stock Warrants Debt Securities Units

The following are types of securities that we may offer, issue and sell from time to time, together or separately:

shares of our common stock;

shares of our preferred stock;

warrants;

debt securities; and

units consisting of any combination of our common stock, preferred stock, warrants or debt securities.

We may offer these securities in amounts, at prices, and on terms determined at the time of offering. We may sell these securities directly to you through agents we select or through underwriters and dealers we select. If we use agents, underwriters or dealers to sell these securities, we will name them and describe their compensation in a prospectus supplement. You should read this prospectus and any prospectus supplement carefully before you invest.

This prospectus provides a general description of the securities we may offer. Each time we sell securities, we will provide specific terms of the securities offered in a supplement to this prospectus. The prospectus supplement may also add, update or change information contained in this prospectus. You should read this prospectus and the applicable prospectus supplement carefully, together with additional information described under the heading "Where You Can Find More Information," before you invest in any securities. This prospectus may not be used to consummate a sale of securities unless accompanied by the applicable prospectus supplement.

Our common stock is traded on the Nasdaq Capital Market under the symbol "STML." On August 7, 2017, the per share closing price of our common stock as reported on the Nasdaq Capital Market was \$8.85 per share.

Investing in our securities involves certain risks. See "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2016, as well as our Quarterly Reports on Form 10-Q for the periods ended March 31, 2017 and June 30, 2017, which have been filed with the SEC and are incorporated by reference into this prospectus. You should read the entire prospectus carefully before you make your investment decision.

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.

The date of this prospectus is

, 2017.

Table of Contents

| | Page |
|---|-----------|
| Stemline Therapeutics, Inc. | 1 |
| The Offering | <u>3</u> |
| Forward-Looking Statements | 4 |
| Where You Can Find More Information | <u>4</u> |
| Important Information About This Prospectus | <u>4</u> |
| Incorporation of Certain Information by Reference | <u>5</u> |
| Ratio of Earnings/ Deficiency to Fixed Charges | <u>6</u> |
| Description of Securities We May Offer | <u>6</u> |
| Description of Common Stock | <u>6</u> |
| Description of Preferred Stock | <u>8</u> |
| Description of Warrants | <u>10</u> |
| Description of Debt Securities | <u>10</u> |
| Description of Units | <u>13</u> |
| Plan of Distribution | <u>15</u> |
| Legal Matters | <u>16</u> |
| Experts | <u>16</u> |
| | i |

STEMLINE THERAPEUTICS, INC.

Overview

We are a clinical stage biopharmaceutical company focused on discovering, acquiring, developing and potentially commercializing innovative oncology therapeutics that target difficult to treat cancers. We are currently developing three clinical stage product candidates: SL-401, SL-801, and SL-701.

SL-401

SL-401 is a targeted therapy directed to the interleukin-3 receptor, or IL-3R (CD123), present on a wide range of hematologic cancers. SL-401 is being advanced through a pivotal Phase 2 trial in patients with blastic plasmacytoid dendritic cell neoplasm, or BPDCN. SL-401 is also being assessed in additional indications including in Phase 1/2 trials of patients with myeloproliferative neoplasms, or MPNs, focused on chronic myelomonocytic leukemia, or CMML, and myelofibrosis; acute myeloid leukemia, or AML, in complete remission with minimal residual disease, or MRD; and in combination with other agents in relapsed/refractory multiple myeloma. Factors that may impact next steps for SL-401 in these additional indications include enrollment trends, safety and efficacy results, regulatory and other considerations.

SL-401 was granted Breakthrough Therapy Designation, or BTD, by the U.S. Food and Drug Administration, or FDA, for BPDCN in August 2016. The FDA awarded Orphan Drug status to SL-401 for the treatment of AML in February 2011 and for BPDCN in June 2013. The European Medicines Agency, or EMA, awarded Orphan Drug status to SL-401 for the treatment of AML in October 2015 and for BPDCN in November 2015.

In the second half of 2017, we plan to announce results from the pivotal Phase 2 trial of SL-401 in BPDCN, including data from the Stage 3 cohort. If, in our view, the results of this trial could support pursuing marketing approval, which it may not, we plan to include such results as part of a Biologics License Application, or BLA, that seeks U.S. marketing approval, and we anticipate such a filing could begin in the fourth quarter of 2017 or first quarter of 2018.

SL-801

SL-801 is a structurally novel, oral, small molecule, reversible inhibitor of Exportin-1, or XPO1, a tumor-promoting nuclear transport protein. SL-801 has demonstrated potent preclinical in vitro and in vivo antitumor activity against a wide array of solid and hematologic cancers. SL-801's potential ability to reversibly bind XPO1 may offer the possibility to mitigate side effects and help optimize the therapeutic index. We are currently enrolling patients with advanced solid tumors in a Phase 1 dose escalation trial of single agent SL-801. We have completed five dose levels, and are currently enrolling patients in the sixth dosing cohort. We plan to provide an update on this Phase 1 trial at a medical conference later this year.

SL-701

SL-701 is an immunotherapy designed to direct the immune system to attack targets present on brain cancer, and is comprised of several short synthetic peptides that correspond to epitopes of targets including IL-13R α 2, EphA2, and survivin. We conducted a Phase 2 trial of SL-701 in adult patients with second-line glioblastoma, or GBM. In Stage 1 of this trial, SL-701 was administered as a single agent, with the immunostimulants GM-CSF and Imiquimod. In Stage 2 of the trial, SL-701 was administered in combination with bevacizumab, with the immunostimulant poly-ICLC. Both stages of the trial have completed enrollment and dosing and patients are being followed for survival. Survival trends and other data will be considered when deciding next steps for the program. These steps may include conducting larger studies, including randomized studies, further combination studies with novel

Table of Contents

agents, (e.g., checkpoint inhibitors), that could be conducted alone or via partnerships; or cessation of the program. If additional studies are conducted, this may entail significant manufacturing campaigns and commitments around SL-701 and certain immunostimulants depending upon the choice and availability of immunostimulants. SL-701 was awarded Orphan Drug designation from the FDA for the treatment of glioma in January 2015.

Our Company

We were incorporated under the laws of the State of Delaware in August 2003. Our principal executive office is located at 750 Lexington Avenue, Eleventh Floor, New York, New York 10022 and our telephone number is (646) 502-2311.

Table of Contents

THE OFFERING

| Use of proceeds | We intend to use the net proceeds of any offering as set forth in the applicable prospectus supplement. |
|------------------------------|---|
| NASDAQ Capital Market symbol | STML 3 |

Table of Contents

FORWARD-LOOKING STATEMENTS

This prospectus includes statements that are, or may be deemed, "forward-looking statements." In some cases, these forward-looking statements can be identified by the use of forward-looking terminology, including the terms "believes," "estimates," "anticipates," "expects," "plans," "intends," "may," "could," "might," "will," "should," "approximately" or, in each case, their negative or other variations thereon or comparable terminology, although not all forward-looking statements contain these words. They appear in a number of places throughout this prospectus and include statements regarding our intentions, beliefs, projections, outlook, analyses or current expectations concerning, among other things, our history of net operating losses and uncertainty regarding our ability to obtain capital and achieve profitability, our ability to develop and commercialize our product candidates, our ability to advance our development programs, enroll our trials, and achieve clinical endpoints, our ability to use or expand our technology to build a pipeline of product candidates, our ability to obtain and maintain regulatory approval of our product candidates and comply with ongoing regulatory requirements, our ability to successfully operate in a competitive industry and gain market acceptance by physician, provider, patient, and payor communities, our reliance on third parties, unstable economic or market conditions, and our ability to obtain and adequately protect intellectual property rights for our product candidates.

By their nature, forward-looking statements involve risks and uncertainties because they relate to events, competitive dynamics, and healthcare, regulatory and scientific developments and depend on the economic circumstances that may or may not occur in the future or may occur on longer or shorter timelines than anticipated. Although we believe that we have a reasonable basis for each forward-looking statement contained in this prospectus, we caution you that forward-looking statements are not guarantees of future performance and that our actual results of operations, financial condition and liquidity, and the development of the industry in which we operate may differ materially from the forward-looking statements contained in this prospectus. In addition, even if our results of operations, financial condition and liquidity, and the development of the industry in which we operate are consistent with the forward-looking statements contained in this prospectus, they may not be predictive of results or developments in future periods.

WHERE YOU CAN FIND MORE INFORMATION

We file reports with the SEC on an annual basis using Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K. You may read and copy any such reports and amendments thereto at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for information on the operation of the Public Reference Room. Additionally, the SEC maintains a website that contains annual, quarterly, and current reports, proxy statements, and other information that issuers (including us) file electronically with the SEC. The SEC's website address is http://www.sec.gov. You can also obtain copies of materials we file with the SEC from our Internet website found at www.stemline.com. Our stock is quoted on the Nasdaq Capital Market under the symbol "STML."

IMPORTANT INFORMATION ABOUT THIS PROSPECTUS

This prospectus is part of a "shelf" registration statement that we filed with the SEC. By using a shelf registration statement, we may sell our securities, as described in this prospectus, from time to time in one or more offerings. We may use the shelf registration statement to offer and sell securities described in this prospectus. Each time we sell securities, we will provide a prospectus supplement to this prospectus that contains specific information about the terms of such offering. The supplement may also add, update or change information contained in this prospectus. Before purchasing any securities, you should carefully read both this prospectus and any supplement, together with the

Table of Contents

additional information incorporated into this prospectus or described under the heading "Where You Can Find More Information."

You should rely only on the information contained or incorporated by reference in this prospectus and any prospectus supplement. We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We will not make an offer to sell securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus, as well as information we previously filed with the SEC and have incorporated by reference, is accurate as of the date on the front cover of this prospectus only, or when such document was filed with the SEC. Our business, financial condition, results of operations and prospects may have changed since the relevant date.

We will not use this prospectus to offer and sell securities unless it is accompanied by a prospectus supplement that more fully describes the terms of the offering.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to "incorporate by reference" the information we file with them. This means that we can disclose important information to you by referring you to those documents instead of having to repeat the information in this document. The information incorporated by reference is considered to be part of this prospectus, and later information that we file with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (1) after the date of the initial registration statement, as amended, and prior to effectiveness of the registration statement, and (2) after the date of this prospectus and prior to the termination of this offering. Such information will automatically update and supersede the information contained in this prospectus and the documents listed below; provided, however, that we are not, unless specifically indicated, incorporating any information furnished under Item 2.02 or Item 7.01 of any current report on Form 8-K, whether listed below or filed in the future, or related exhibits furnished pursuant to Item 9.01 of Form 8-K:

| (a) | Our Annual Report on Form 10-K for the year ended December 31, 2016; |
|-----|--|
| (b) | Our Quarterly Report on Form 10-Q for the quarters ended March 31, 2017 and June 30, 2017; |
| (c) | Our Current Reports on Form 8-K filed with the SEC on January 6, 2017, January 20, 2017, March 17, 2017, March 24, 2017, May 11, 2017, June 20, 2017 and August 8, 2017; |
| (d) | Our Definitive Proxy Statement on Schedule 14A, filed with the SEC on May 1, 2017; and |
| (e) | Description of our common stock, which is contained in the Registration Statement on Form 8-A, as filed with the SEC on July 30, 2012, as supplemented by the Description of Common Stock found on page 5 of the base prospectus and including any amendments or reports filed for the purpose of updating such description. |

We will provide to each person, including any beneficial owner, to whom a copy of this prospectus is delivered, a copy of any or all of the information that we have incorporated by reference into this prospectus. We will provide this information upon written or oral request at no cost to the requester. You may request this information by contacting our corporate headquarters at the following address: 750 Lexington Avenue, Eleventh Floor, New York, New York 10022, Attn: Chief Accounting Officer, or by calling (646) 502-2311.

RATIO OF EARNINGS/ DEFICIENCY TO FIXED CHARGES

The following table sets forth, for each of the periods presented, our ratio of earnings to fixed charges and our coverage deficiency. You should read this table in conjunction with the financial statements and notes incorporated by reference in this prospectus.

| (in thousands) | Six Months Ended June 30, 2017 | Year Ended December 31, 2016 | Year Ended December 31, 2015 | Year Ended December 31, 2014 | Year Ended December 31, 2013 | Year Ended December 31, 2012 |
|---------------------------------------|--|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Net loss | (30,022,946) | (38,303,005) | (37,243,861) | (28,829,975) | (24,196,511) | (6,274,782) |
| Ratio of earnings to fixed charges(1) | N/A | N/A | N/A | N/A | N/A | N/A |
| Coverage deficiency | (30,022,946) | (38,303,005) | (37,243,861) | (28,829,975) | (24,196,511) | (6,274,782) |

(1)

We did not record earnings for the six months ended June 30, 2017, and for the years ended December 31, 2016, 2015, 2014, 2013 and 2012. Accordingly, our earnings were insufficient to cover fixed charges for such periods and we are unable to disclose a ratio of earnings to fixed charges for such periods.

DESCRIPTION OF SECURITIES WE MAY OFFER

This prospectus contains summary descriptions of the securities we may offer from time to time. These summary descriptions are not meant to be complete descriptions of each security. The particular terms of any security will be described in the related prospectus supplement.

DESCRIPTION OF COMMON STOCK

The following summary of the terms of our common stock may not be complete and is subject to, and qualified in its entirety by reference to, the terms and provisions of our restated certificate of incorporation and our amended and restated by-laws. You should refer to, and read this summary together with, our restated certificate of incorporation and amended and restated by-laws to review all of the terms of our common stock that may be important to you.

Common Stock

Under the terms of our restated certificate of incorporation, we are authorized to issue a total of 53,750,000 shares of common stock, par value \$0.0001 per share. As of August 8, 2017, we had issued and outstanding 25,280,024 shares of our common stock. All outstanding shares of our common stock are fully paid and nonassessable. Our common stock is listed on The Nasdaq Capital Market and trades under the symbol "STML" and has been publicly traded since January 29, 2013. Prior to that time, there was no public market for our common stock.

Holders

The number of record holders of our 25,280,024 shares of outstanding common stock as of August 8, 2017 was 136. This number does not include beneficial owners whose shares are held by nominees in street name.

Dividends

We have never declared or paid any cash dividends on our common stock and do not anticipate paying any cash dividends in the foreseeable future. Any future determination to pay dividends will be at the discretion of our board of directors.

Voting Rights

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. Holders of our common stock are not entitled to vote on any amendment to our restated certificate of incorporation that relates solely to the terms of one or more outstanding series of preferred stock. An election of directors by our stockholders will be determined by a plurality of the votes cast by the stockholders entitled to vote on the election. Holders of common stock are entitled to receive proportionately any dividends as may be declared by our board of directors, subject to any preferential dividend rights or other rights of outstanding preferred stock.

Liquidation and Dissolution

In the event of our liquidation or dissolution, the holders of common stock are entitled to receive proportionately all assets available for distribution to stockholders after the payment of all debts and other liabilities and subject to the preferential or other rights of any outstanding preferred stock. Holders of common stock have no preemptive, subscription, redemption, conversion or similar rights. The rights, preferences and privileges of holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future.

Transfer Agent

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A.

Anti-Takeover Provisions

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the Delaware General Corporation Law. Subject to certain exceptions, Section 203 prevents a publicly held Delaware corporation from engaging in a "business combination" with any "interested stockholder" for three years following the date that the person became an interested stockholder, unless the interested stockholder attained such status with the approval of our board of directors or unless the business combination is approved in a prescribed manner. A "business combination" includes, among other things, a merger or consolidation involving us and the "interested stockholder" and the sale of more than 10% of our assets. In general, an "interested stockholder" is any entity or person beneficially owning 15% or more of our outstanding voting stock and any entity or person affiliated with or controlling or controlled by such entity or person.

Staggered board; removal of directors

Our restated certificate of incorporation and our amended and restated by-laws divide our board of directors into three classes with staggered three-year terms. In addition, a director may be removed only for cause and only by the affirmative vote of the holders of at least 75% of the votes that all our stockholders would be entitled to cast in an annual election of directors. Any vacancy on our board of directors, including a vacancy resulting from an enlargement of our board of directors, may be filled only by vote of a majority of our directors then in office. The classification of our board of directors and the limitations on the removal of directors and filling of vacancies could make it more difficult for a third party to acquire, or discourage a third party from seeking to acquire, control of our Company.

Super-majority voting

The Delaware General Corporation Law provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or by-laws, unless a corporation's certificate of incorporation or by-laws, as the case may be, requires a greater percentage. Our amended and restated by-laws may be amended or repealed by a majority vote of our board of directors or the affirmative vote of the holders of at least 75% of the votes that all our stockholders would be entitled to cast in an annual election of directors. In addition, the affirmative vote of the holders of at least 75% of the votes which all our stockholders would be entitled to cast in an election of directors is required to amend or repeal or to adopt any provisions inconsistent with any of the provisions of our certificate of incorporation described in the prior two paragraphs.

Stockholder action; special meeting of stockholders

Our restated certificate of incorporation provides that any action required or permitted to be taken by our stockholders must be effected at a duly called annual or special meeting of such stockholders and may not be effected by any consent in writing by such stockholders. Our restated certificate of incorporation and our amended and restated by-laws also provide that, except as otherwise required by law, special meetings of our stockholders can only be called by our chairman of the board, our chief executive officer or our board of directors and business transacted at any special meeting is limited to the stated purposes of the meeting.

Authorized but unissued shares

The authorized but unissued shares of common stock and preferred stock are available for future issuance without stockholder approval, subject to any limitations imposed by the listing standards of The Nasdaq Capital Market. These additional shares may be used for a variety of corporate finance transactions, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved common stock and preferred stock could make more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise.

DESCRIPTION OF PREFERRED STOCK

The following summary of the terms of our preferred stock may not be complete and is subject to, and qualified in its entirety by reference to, the terms and provisions of our restated certificate of incorporation and our amended and restated by-laws. You should refer to, and read this summary together with, our restated certificate of incorporation and amended and restated by-laws to review all of the terms of our preferred stock that may be important to you.

Under the terms of our restated certificate of incorporation, our board of directors is authorized to issue up to 5,000,000 shares of preferred stock, par value \$0.0001 per share. Our board of directors may issues shares of preferred stock in one or more series without stockholder approval, and has the discretion to determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock. We may amend from time to time our restated certificate of incorporation to increase the number of authorized shares of preferred stock. Any such amendment would require the approval of the holders of a majority of the voting power of the shares entitled to vote thereon. As of the date of this prospectus, we have 5,000,000 shares of preferred stock outstanding.

It is not possible to state the actual effect of the issuance of any shares of preferred stock upon the rights of the holders of common stock until the board of directors determines the specific rights of the holders of preferred stock. However, effects of the issuance of preferred stock include restricting

Table of Contents

dividends on common stock, diluting the voting power of common stock, impairing the liquidation rights of common stock, and making it more difficult for a third party to acquire us, which could have the effect of discouraging a third party from acquiring, or deterring a third party from paying a premium to acquire, a majority of our outstanding voting stock.

The particular terms of any series of preferred stock being offered by us will be described in the prospectus supplement relating to that series of preferred stock. Those terms may include:

the title and liquidation preference per share of the preferred stock and the number of shares offered;

the purchase price of the preferred stock;

the dividend rate (or method of calculation);

the dates on which dividends will be paid and the date from which dividends will begin to accumulate;

any redemption or sinking fund provisions of the preferred stock;

any listing of the preferred stock on any securities exchange or market;

any conversion provisions of the preferred stock;

the voting rights, if any, of the preferred stock; and

any additional dividend, liquidation, redemption, sinking fund and other rights, preferences, privileges, limitations and restrictions of the preferred stock.

The preferred stock will, when issued, be fully paid and non-assessable.

DESCRIPTION OF WARRANTS

We may issue warrants to purchase shares of our common stock and/or preferred stock in one or more series together with other securities or separately, as described in each applicable prospectus supplement.

The prospectus supplement relating to any warrants we offer will include specific terms relating to the offering. These terms will include some or all of the following:

the title of the warrants;

the aggregate number of warrants offered;

the designation, number and terms of the shares of common stock purchasable upon exercise of the warrants and procedures by which those numbers may be adjusted;

the exercise price of the warrants;

the dates or periods during which the warrants are exercisable;

the designation and terms of any securities with which the warrants are issued;

if the warrants are issued as a unit with another security, the date on and after which the warrants and the other security will be separately transferable;

if the exercise price is not payable in U.S. dollars, the foreign currency, currency unit or composite currency in which the exercise price is denominated;

any minimum or maximum amount of warrants that may be exercised at any one time;

any terms relating to the modification of the warrants;

any terms, procedures and limitations relating to the transferability, exchange or exercise of the warrants; and

any other specific terms of the warrants.

DESCRIPTION OF DEBT SECURITIES

We may offer debt securities which may be senior, subordinated or junior subordinated and may be convertible. Unless otherwise specified in the applicable prospectus supplement, our debt securities will be issued in one or more series under an indenture to be entered into between us and a trustee. We will issue the debt securities offered by this prospectus and any accompanying prospectus supplement under an indenture to be entered into between us and the trustee identified in the applicable prospectus supplement. The terms of the debt securities will include those stated in the indenture and those made part of the indenture by reference to the Trust Indenture Act of 1939, as in effect on the date of the

indenture. We have filed a copy of the form of indenture as an exhibit to the registration statement in which this prospectus is included. The indenture will be subject to and governed by the terms of the Trust Indenture Act of 1939.

The following description briefly sets forth certain general terms and provisions of the debt securities that we may offer. The particular terms of the debt securities offered by any prospectus supplement and the extent, if any, to which these general provisions may apply to the debt securities, will be described in the related prospectus supplement. Accordingly, for a description of the terms of a particular issue of debt securities, reference must be made to both the related prospectus supplement and to the following description.

Table of Contents

Debt Securities

The aggregate principal amount of debt securities that may be issued under the indenture is unlimited. The debt securities may be issued in one or more series as may be authorized from time to time pursuant to a supplemental indenture entered into between us and the trustee or an order delivered by us to the trustee. For each series of debt securities we offer, a prospectus supplement accompanying this prospectus will describe the following terms and conditions of the series of debt securities that we are offering, to the extent applicable:

title and aggregate principal amount;

whether the debt securities will be senior, subordinated or junior subordinated;

applicable subordination provisions, if any;

provisions regarding whether the debt securities will be convertible or exchangeable into other securities or property of the Company or any other person;

percentage or percentages of principal amount at which the debt securities will be issued;

maturity date(s);

interest rate(s) or the method for determining the interest rate(s);

whether interest on the debt securities will be payable in cash or additional debt securities of the same series;

dates on which interest will accrue or the method for determining dates on which interest will accrue and dates on which interest will be payable;

whether the amount of payment of principal of, premium, if any, or interest on the debt securities may be determined with reference to an index, formula or other method;

redemption, repurchase or early repayment provisions, including our obligation or right to redeem, purchase or repay debt securities under a sinking fund, amortization or analogous provision;

if other than the debt securities' principal amount, the portion of the principal amount of the debt securities that will be payable upon declaration of acceleration of the maturity;

authorized denominations;

form;

amount of discount or premium, if any, with which the debt securities will be issued, including whether the debt securities will be issued as "original issue discount" securities;

the place or places where the principal of, premium, if any, and interest on the debt securities will be payable;

where the debt securities may be presented for registration of transfer, exchange or conversion;

the place or places where notices and demands to or upon the Company in respect of the debt securities may be made;

whether the debt securities will be issued in whole or in part in the form of one or more global securities;

if the debt securities will be issued in whole or in part in the form of a book-entry security, the depository or its nominee with respect to the debt securities and the circumstances under which

Table of Contents

the book-entry security may be registered for transfer or exchange or authenticated and delivered in the name of a person other than the depository or its nominee;

whether a temporary security is to be issued with respect to such series and whether any interest payable prior to the issuance of definitive securities of the series will be credited to the account of the persons entitled thereto;

the terms upon which beneficial interests in a temporary global security may be exchanged in whole or in part for beneficial interests in a definitive global security or for individual definitive securities;

the guarantors, if any, of the debt securities, and the extent of the guarantees and any additions or changes to permit or facilitate guarantees of such debt securities;

any covenants applicable to the particular debt securities being issued;

any defaults and events of default applicable to the debt securities, including the remedies available in connection therewith;

currency, currencies or currency units in which the purchase price for, the principal of and any premium and any interest on, such debt securities will be payable;

time period within which, the manner in which and the terms and conditions upon which the Company or the purchaser of the debt securities can select the payment currency;

securities exchange(s) on which the debt securities will be listed, if any;

whether any underwriter(s) will act as market maker(s) for the debt securities;

extent to which a secondary market for the debt securities is expected to develop;

provisions relating to defeasance;

provisions relating to satisfaction and discharge of the indenture;

any restrictions or conditions on the transferability of the debt securities;

provisions relating to the modification of the indenture both with and without the consent of holders of debt securities issued under the indenture;

any addition or change in the provisions related to compensation and reimbursement of the trustee;

provisions, if any, granting special rights to holders upon the occurrence of specified events;

whether the debt securities will be secured or unsecured, and, if secured, the terms upon which the debt securities will be secured and any other additions or changes relating to such security; and

any other terms of the debt securities that are not inconsistent with the provisions of the Trust Indenture Act (but may modify, amend, supplement or delete any of the terms of the indenture with respect to such series of debt securities).

General

One or more series of debt securities may be sold as "original issue discount" securities. These debt securities would be sold at a substantial discount below their stated principal amount, bearing no interest or interest at a rate which at the time of issuance is below market rates. One or more series of debt securities may be variable rate debt securities that may be exchanged for fixed rate debt securities.

Table of Contents

United States federal income tax consequences and special considerations, if any, applicable to any such series will be described in the applicable prospectus supplement.

Debt securities may be issued where the amount of principal and/or interest payable is determined by reference to one or more currency exchange rates, commodity prices, equity indices or other factors. Holders of such debt securities may receive a principal amount or a payment of interest that is greater than or less than the amount of principal or interest otherwise payable on such dates, depending upon the value of the applicable currencies, commodities, equity indices or other factors. Information as to the methods for determining the amount of principal or interest, if any, payable on any date, the currencies, commodities, equity indices or other factors to which the amount payable on such date is linked and certain additional United States federal income tax considerations will be set forth in the applicable prospectus supplement.

The term "debt securities" includes debt securities denominated in U.S. dollars or, if specified in the applicable prospectus supplement, in any other freely transferable currency or units based on or relating to foreign currencies.

We expect most debt securities to be issued in fully registered form without coupons and in denominations of \$2,000 and any integral multiples thereof. Subject to the limitations provided in the indenture and in the prospectus supplement, debt securities that are issued in registered form may be transferred or exchanged at the principal corporate trust office of the trustee, without the payment of any service charge, other than any tax or other governmental charge payable in connection therewith.

Global Securities

The debt securities of a series may be issued in whole or in part in the form of one or more global securities that will be deposited with, or on behalf of, a depositary identified in the prospectus supplement. Global securities will be issued in registered form and in either temporary or definitive form. Unless and until it is exchanged in whole or in part for the individual debt securities, a global security may not be transferred except as a whole by the depositary for such global security to a nominee of such depositary or by a nominee of such depositary to such depositary or another nominee of such depositary or by such depositary or any such nominee to a successor of such depositary or a nominee of such successor. The specific terms of the depositary arrangement with respect to any debt securities of a series and the rights of and limitations upon owners of beneficial interests in a global security will be described in the applicable prospectus supplement.

Governing Law

The indenture and the debt securities shall be construed in accordance with and governed by the laws of the State of New York.

DESCRIPTION OF UNITS

We may issue, in one more series, units comprised of shares of our common stock or preferred stock, warrants to purchase common stock or preferred stock, debt securities or any combination of those securities. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date.

We may evidence units by unit certificates that we issue under a separate agreement. We may issue the units under a unit agreement between us and one or more unit agents. If we elect to enter into a unit agreement with a unit agent, the unit agent will act solely as our agent in connection with the units

Table of Contents

and will not assume any obligation or relationship of agency or trust for or with any registered holders of units or beneficial owners of units. We will indicate the name and address and other information regarding the unit agent in the applicable prospectus supplement relating to a particular series of units if we elect to use a unit agent.

We will describe in the applicable prospectus supplement the terms of the series of units being offered, including:

the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;

any provisions of the governing unit agreement that differ from those described herein; and

any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units.

The other provisions regarding our common stock, preferred stock, warrants and debt securities as described in this section will apply to each unit to the extent such unit consists of shares of our common stock, preferred stock, warrants and/or debt securities.



PLAN OF DISTRIBUTION

We may sell the securities covered in this prospectus from time to time in one or more of the following ways:

through underwriters or dealers;

in short or long transactions;

directly to a limited number of purchasers or to a single purchaser;

through agents; or

through a combination of any of these methods of sale.

Each time that we use this prospectus to sell securities, we will also provide a prospectus supplement that contains the specific terms of the offering. The prospectus supplement will set forth the terms of the offering of the securities, including:

the name or names of any underwriters, dealers or agents and the amounts of any securities underwritten or purchased by each of them; and

the purchase price of the securities being offered and the proceeds to us and any discounts, commissions or concessions allowed or reallowed or paid to dealers.

The purchase price and any discounts or concessions allowed or reallowed or paid to dealers may be changed from time to time.

If underwriters are used in the sale of any securities, the securities will be acquired by the underwriters for their own account and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. The securities may be either offered to the public through underwriting syndicates represented by managing underwriters, or directly by underwriters. Generally, the underwriters' obligations to purchase the securities will be subject to certain conditions precedent. The underwriters will be obligated to purchase all of the securities if they purchase any of the securities.

We may sell the securities through agents from time to time. The prospectus supplement will name any agent involved in the offer or sale of the securities and any commissions we pay to them. Generally, any agent will be acting on a best efforts basis for the period of its appointment.

We may authorize underwriters, dealers or agents to solicit offers by certain purchasers to purchase the securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. The contracts will be subject only to those conditions set forth in the prospectus supplement, and the prospectus supplement will set forth any commissions we pay for solicitation of these contracts.

Agents and underwriters may be entitled to indemnification by us against certain civil liabilities, including liabilities under the Securities Act of 1933, as amended, or to contribution with respect to payments which the agents or underwriters may be required to make in respect thereof. Agents and underwriters may be customers of, engage in transactions with, or perform services for us in the ordinary course of business.

We may enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement indicates, in connection with those derivatives, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third party may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of securities, and may use

securities received from us in

Table of Contents

settlement of those derivatives to close out any related open borrowings of securities. The third party in such sale transactions will be an underwriter and will be identified in the applicable prospectus supplement (or a post-effective amendment). We may also use underwriters or such other third parties with whom we have a material relationship. We will describe the nature of any such relationship in the applicable prospectus supplement.

In compliance with the guidelines of the Financial Industry Regulatory Authority, Inc., or FINRA, the maximum compensation to be received by a FINRA member or independent broker-dealer may not exceed 8% of the offering proceeds. It is anticipated that the maximum compensation to be received in any particular offering of securities will be less than this amount.

At-the-Market Offerings

Upon written instruction from us, a sales agent party to a distribution agency agreement with us will use its commercially reasonable efforts to sell on our behalf, as our agent, the shares of common stock offered as agreed upon by us and the sales agent. We will designate the maximum amount of shares of common stock to be sold through the sales agent, on a daily basis or otherwise as we and the sales agent agree. Subject to the terms and conditions of the applicable distribution agency agreement, the sales agent will use its commercially reasonable efforts to sell, as our sales agent and on our behalf, all of the designated shares of common stock. We may instruct the sales agent not to sell shares of common stock if the sales cannot be effected at or above the price designated by us in any such instruction. We may suspend the offering of shares of common stock under any distribution agency agreement by notifying the sales agent. Likewise, the sales agent may suspend the offering of shares of common stock under the applicable distribution agency agreement by notifying us of such suspension.

We also may sell shares to the sales agent as principal for its own account at a price agreed upon at the time of sale. If we sell shares to the sales agent as principal, we will enter into a separate agreement setting forth the terms of such transaction.

The offering of common stock pursuant to a distribution agency agreement will terminate upon the earlier of (1) the sale of all shares of common stock subject to the distribution agency agreement or (2) the termination of the distribution agency agreement by us or by the sales agent.

Sales agents under our distribution agency agreements may make sales in privately negotiated transactions and/or any other method permitted by law, including sales deemed to be an "at-the-market" offering as defined in Rule 415 promulgated under the Securities Act, sales made directly on the Nasdaq Capital Market, the existing trading market for our common stock, or sales made to or through a market maker other than on an exchange. The name of any such underwriter or agent involved in the offer and sale of our common stock, the amounts underwritten, and the nature of its obligations to take our common stock will be described in the applicable prospectus supplement.

LEGAL MATTERS

The legality and validity of the securities offered from time to time under this prospectus will be passed upon by Alston & Bird LLP, New York, New York.

EXPERTS

The financial statements of Stemline Therapeutics, Inc. appearing in Stemline Therapeutics, Inc's Annual Report (Form 10-K) for the year ended December 31, 2016 have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon, included therein, and incorporated herein by reference. Such financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

\$175,000,000

Stemline Therapeutics, Inc.

Common Stock Preferred Stock Warrants Debt Securities Units

PROSPECTUS

, 2017

PART II INFORMATION NOT REQUIRED IN THE PROSPECTUS

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION.

The table below itemizes the expenses payable by the Registrant in connection with the registration and issuance of the securities being registered hereunder, other than underwriting discounts and commissions. All amounts except the Securities and Exchange Commission registration fee are estimated.

| \$ 20,282.50 |
|----------------------|
| \$ * |
| \$ \$ \$ \$ |

*

To be filed by amendment, Form 8-K or Rule 424 filing.

ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS.

Section 102 of the Delaware General Corporation Law permits a corporation to eliminate the personal liability of its directors to the company or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached his or her duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit. Our restated certificate of incorporation provides that no director shall be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director, notwithstanding any provision of law imposing such liability, except to the extent that the Delaware General Corporation Law prohibits the elimination or limitation of liability of directors for breaches of fiduciary duty as described in the previous sentence.

Section 145 of the Delaware General Corporation Law provides that a corporation has the power to indemnify a director, officer, employee or agent of the corporation and certain other persons serving at the request of the corporation in related capacities against expenses (including attorneys' fees), judgments, fines and amounts paid in settlements actually and reasonably incurred by the person in connection with an action, suit or proceeding to which he or she is party or is threatened to be made a party by reason of such position, if such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful, except that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or other adjudicating court determines that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnification for such expenses which the Court of Chancery or such other court shall deem proper.

Our restated certificate of incorporation provides that we will indemnify each person who was or is a party or threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of us) by reason of the fact that he or she is or was, or has agreed to become, our director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner,

Table of Contents

employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (including any employee benefit plan) (all such persons being referred to as an "Indemnitee"), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees), liabilities, losses, judgments, fines, excise taxes and penalties arising under the Employee Retirement Income Security Act of 1974, and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding and any appeal therefrom, if such Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, and, with respect to any criminal action or proceeding, he or she had no reasonable cause to believe his or her conduct was unlawful.

Our restated certificate of incorporation also provides that we will indemnify any Indemnitee who was or is a party to any threatened, pending or completed action or suit by or in the right of us to procure a judgment in our favor by reason of the fact that the Indemnitee is or was, or has agreed to become, our director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (including any employee benefit plan), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees) and, to the extent permitted by law, amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding, and any appeal therefrom, if the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, except that no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to us, unless a court determines that, despite such adjudication but in view of all of the circumstances, he or she is entitled to indemnification of such expenses. Notwithstanding the foregoing, to the extent that any Indemnitee has been successful, on the merits or otherwise, he or she will be indemnified by us against all expenses (including attorneys' fees) actually and reasonably incurred by him or her or on his or her behalf in connection therewith. If we don't assume the defense, expenses must be advanced to an Indemnitee under certain circumstances.

We have entered into indemnification agreements with our directors. In general, these agreements provide that we will indemnify the director to the fullest extent permitted by law for claims arising in his or her capacity as a director of our Company or in connection with his or her service at our request for another corporation or entity. The indemnification agreements also provide for procedures that will apply in the event that a director makes a claim for indemnification and establish certain presumptions that are favorable to the director.

We maintain a general liability insurance policy which covers certain liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers.

II-2

ITEM 16. EXHIBITS.

Exhibit

Number 1.1 Underwriting Agreement* Description

- 4.1 Specimen Common Stock Certificate, filed as Exhibit 4.1 to the Registrant's Second Amendment to the Registration Statement on Form S-1 filed on June 20, 2012 (File No. 333-180515), and incorporated herein by reference.
- 4.2 Form of Preferred Stock Designation*
- 4.3 Form of Warrant Agreement*
- 4.4 Form of Common Stock Warrant Agreement and Warrant Certificate*
- 4.5 Form of Preferred Stock Warrant Agreement and Warrant Certificate*
- 4.6 Form of Indenture (filed herewith)
- 4.7 Form of Note*
- 4.8 Form of Unit Agreement*
- 5.1 Opinion of Alston & Bird LLP (filed herewith)
- 12.1 Calculation of Ratio/Deficiency of Earnings to Fixed Charges (filed herewith)
- 23.1 Consent of Ernst & Young LLP (filed herewith)
- 23.2 Consent of Alston & Bird LLP (included in Exhibit 5.1)
- 24.1 Power of Attorney (included on the signature page to this Registration Statement)
- 25.1 Statement of Eligibility of Trustee Under Debt Indenture**
- *

To be filed by amendment or as an exhibit to a document to be incorporated by reference herein in connection with an offering of our securities to the extent applicable.

**

To be filed, if necessary separately pursuant to Section 305(b)(2) of the Trust Indenture Act of 1939.

II-3

ITEM 17. UNDERTAKINGS.

A.

RULE 415 OFFERING

The undersigned 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 of 1933;

(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 the 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 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(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:

(A)

Paragraphs (a)(1)(i) and (a)(1)(ii) of this section do not apply if the registration statement is on Form S-8 (§ 239.16b of this chapter), and the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to section 13 or section 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)) that are incorporated by reference in the registration statement; and

(B)

Paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) of this section do not apply if the registration statement is on Form S-3 (§ 239.13 of this chapter) or Form F-3 (§ 239.33 of this chapter) and the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to section 13 or section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) (§ 230.424(b) of this chapter) that is part of the registration statement.

(C)

Provided further, however, that paragraphs (a)(1)(i) and (a)(1)(ii) do not apply if the registration statement is for an offering of asset-backed securities on Form S-1 (§ 239.11 of this chapter) or Form S-3 (§ 239.13 of this chapter), and the information required to be included in a post-effective amendment is provided pursuant to Item 1100(c) of Regulation AB (§ 229.1100(c)).

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To 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.

Table of Contents

- (5) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:
 - (A)

Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the Registration Statement as of the date the filed prospectus was deemed part of and included in the Registration Statement; and

(B)

Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a Registration Statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the Registration Statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the Registration Statement relating to the securities in the Registration Statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a Registration Statement or prospectus that is part of the Registration Statement or made in a document incorporated by reference into the Registration Statement or prospectus that is part of the Registration Statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the Registration Statement or prospectus that was part of the Registration Statement or made in an y such document immediately prior to such effective date.

(6) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities:

The undersigned registrant undertakes that 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.

В.

Filings Incorporating Subsequent Exchange Act Documents By Reference

The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration

Table of Contents

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.

Warrants and Rights Offerings

The undersigned registrant hereby undertakes to supplement the prospectus, after the expiration of the subscription period, to set forth the results of the subscription offer, the transactions by the underwriters during the subscription period, the amount of unsubscribed securities to be purchased by the underwriters, and the terms of any subsequent reoffering thereof. If any public offering by the underwriters is to be made on terms differing from those set forth on the cover page of the prospectus, a post-effective amendment will be filed to set forth the terms of such offering.

E.

Incorporated Annual and Quarterly Reports

The undersigned registrant hereby undertakes to deliver or cause to be delivered with the prospectus, to each person to whom the prospectus is sent or given, the latest annual report to security holders that is incorporated by reference in the prospectus and furnished pursuant to and meeting the requirements of Rule 14a-3 or Rule 14c-3 under the Securities Exchange Act of 1934; and, where interim financial information required to be presented by Article 3 of Regulation S-X is not set forth in the prospectus, to deliver, or cause to be delivered to each person to whom the prospectus is sent or given, the latest quarterly report that is specifically incorporated by reference in the prospectus to provide such interim financial information.

H.

Request for Acceleration of Effective Date or Filing of Registration Statement

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the 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 of 1933 and will be governed by the final adjudication of such issue.

I.

The undersigned registrant hereby undertakes that:

(1)

For purposes of determining any liability under the Securities Act of 1933, 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.

(2)

For the purpose of determining any liability under the Securities Act of 1933, 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.

J.

Qualification of Trust Indentures

The undersigned registrant hereby undertakes to file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act in accordance with the rules and regulations prescribed by the Commission under Section 305(b)(2) of the Act.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of New York, State of New York, on August 8, 2017.

Date: August 8, 2017

STEMLINE THERAPEUTICS, INC

By: /s/ IVAN BERGSTEIN, M.D.

Ivan Bergstein, M.D.

Chairman, President and Chief Executive Officer (Principal Executive Officer)

By: /s/ DAVID G. GIONCO

David G. Gionco Vice President of Finance and Chief Accounting Officer (Principal Financial and Accounting Officer)

II-7

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints each of Ivan Bergstein, M.D. and Kenneth Hoberman, his true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him and his name, place and stead, in any and all capacities, to sign any or all amendments (including pre-effective and post-effective amendments) to this registration statement, and to file the same, with all exhibits thereto and other documents in connection therewith, including any Registration Statement filed pursuant to Rule 462(b) under the Securities Act of 1933, with the SEC, granting unto said attorney-in-fact and agent, 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 might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent or any of his substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed by the following persons in the capacities indicated as of August 8, 2017.

| Signatures | Title | |
|--------------------------|--|--|
| /s/ IVAN BERGSTEIN, M.D. | Chairman, President and Chief Executive Officer (Principal | |
| Ivan Bergstein, M.D. | Executive Officer) | |
| /s/ DAVID G. GIONCO | Vice President of Finance and Chief Accounting Officer (Princi | |
| David G. Gionco | Financial and Accounting Officer) | |
| /s/ RON BENTSUR | Director | |
| Ron Bentsur | — Director | |
| /s/ ERIC L. DOBMEIER | — Director | |
| Eric L. Dobmeier | Director | |
| /s/ ALAN FORMAN | — Director | |
| Alan Forman | Director | |
| /s/ KENNETH ZUERBLIS | ——— Director II-8 | |
| Kenneth Zuerblis | | |
| | | |

EXHIBIT INDEX

Exhibit Number

Description

4.6 Form of Indenture

5.1 Opinion of Alston & Bird LLP

12.1 Calculation of Ratio/Deficiency of Earnings to Fixed Charges

23.1 Consent of Ernst & Young LLP

23.2 Consent of Alston & Bird LLP (included in Exhibit 5.1)

24.1 Power of Attorney (included on the signature page to this Registration Statement)