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

FORM 8-K

**CURRENT REPORT
Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934**

Date of report (Date of earliest event reported): **January 23, 2018**

Stemline Therapeutics, Inc.

(Exact Name of Registrant as Specified in Charter)

Delaware
(State or Other Jurisdiction
of Incorporation)

001-35619
(Commission File Number)

45-0522567
(IRS Employer Identification No.)

**750 Lexington Avenue
Eleventh Floor
New York, New York 10022**
(Address of Principal Executive Offices)

(646) 502-2311
(Registrant's telephone number, including area code)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act.
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act.
- Pre-commencement communications pursuant to Rule 14d-2b under the Exchange Act.
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act.

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

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

Item 1.01 Entry into a Material Definitive Agreement.

On January 23, 2018, Stemline Therapeutics, Inc. (“Stemline” or the “Company”) entered into an underwriting agreement (the “Underwriting Agreement”) with J.P. Morgan Securities LLC, as representative of the several underwriters named therein (the “Underwriters”). Pursuant to the Underwriting Agreement, the Company agreed to sell to the Underwriters, in a firm commitment underwritten public offering, 3,700,000 shares (the “Firm Shares”) of the Company’s common stock, \$.0001 par value per share (“Common Stock”), at a price to the public of \$14.00 per share, less underwriting discounts and commissions. In addition, pursuant to the Underwriting Agreement, the Company has granted the Underwriters an option, exercisable for 30 days, to purchase up to an additional 555,000 shares of Common Stock (the “Additional Shares,” together with the Firm Shares, the “Shares”). The transactions contemplated by the Underwriting Agreement are expected to close on January 26, 2018, subject to the satisfaction of customary closing conditions. A copy of the Underwriting Agreement is attached hereto as Exhibit 1.1 and is incorporated by reference herein.

J.P. Morgan Securities LLC and Cowen and Company, LLC are acting as joint book-running managers for the offering.

The net proceeds to the Company are expected to be approximately \$48,192,000, assuming no exercise of the option to purchase Additional Shares and after deducting underwriting discounts and commissions and estimated expenses payable by the Company associated with the offering.

The Underwriting Agreement contains customary representations, warranties and agreements by the Company, customary conditions to closing, indemnification obligations of the Company and the Underwriters, including for liabilities under the Securities Act of 1933, as amended, other obligations of the parties and termination provisions.

Alston & Bird LLP, counsel to the Company, delivered an opinion as to the validity of the Shares, a copy of which is attached hereto as Exhibit 5.1 and is incorporated by reference herein.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits

The following exhibits are filed as a part of this report:

Exhibit Number	Description
1.1	<u>Underwriting Agreement, dated January 23, 2018, between Stemline Therapeutics, Inc. and J.P. Morgan Securities LLC and Cowen and Company, LLC, as representatives of the several underwriters named therein.</u>
5.1	<u>Opinion of Alston & Bird LLP.</u>
23.1	<u>Consent of Alston & Bird LLP (included in the opinion filed as Exhibit 5.1).</u>

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Stemline Therapeutics, Inc.
(Registrant)

Date: January 24, 2018

By: /s/ Kenneth Hoberman
Kenneth Hoberman
Chief Operating Officer

STEMLINE THERAPEUTICS, INC.

UNDERWRITING AGREEMENT

January 23, 2018

J.P. Morgan Securities LLC
Cowen and Company, LLC

As Representatives of the
several Underwriters listed
in Schedule 1 hereto

c/o J.P. Morgan Securities LLC
383 Madison Avenue
New York, New York 10179

c/o Cowen and Company, LLC
599 Lexington Avenue
New York, New York 10022

Ladies and Gentlemen:

The undersigned, Stemline Therapeutics, Inc., a corporation formed under the laws of the State of Delaware (the “**Company**”), hereby confirms its agreement (this “**Agreement**”) with J.P. Morgan Securities LLC and Cowen and Company, LLC (hereinafter referred to as “you” (including its correlatives) or the “**Representatives**”) and with the other underwriters named on Schedule 1 hereto for which the Representatives are acting as representatives (the Representatives and such other underwriters being collectively called the “**Underwriters**” or, individually, an “**Underwriter**”) as follows:

1. Purchase and Sale of Shares.

1.1 Firm Shares.

1.1.1. Nature and Purchase of Firm Shares.

(i) On the basis of the representations and warranties herein contained, but subject to the terms and conditions herein set forth, the Company agrees to issue and sell to the several Underwriters, an aggregate of 3,700,000 shares (“**Firm Shares**”) of the Company’s common stock, par value \$0.0001 per share (the “**Common Stock**”).

(ii) The Underwriters, severally and not jointly, agree to purchase from the Company the number of Firm Shares set forth opposite their respective names on Schedule 1 attached hereto and made a part hereof at a purchase price of \$13.16 per share. The Firm Shares are to be offered initially to the public at the offering price set forth on the cover page of the Prospectus (as defined in Section 2.1.1 hereof).

1.1.2. Shares Payment and Delivery.

(i) Delivery and payment for the Firm Shares shall be made at 10:00 a.m., Eastern time, on January 26, 2018 or at such earlier time as shall be agreed upon by the Representatives and the Company, at the offices of Davis Polk & Wardwell LLP, 450 Lexington Avenue, New York, NY 10017 (“**Representatives’ Counsel**”), or at such other place (or remotely by facsimile or other electronic transmission) as shall be agreed upon by the Representatives and the Company. The hour and date of delivery and payment for the Firm Shares is called the “**Closing Date**.”

(ii) Payment for the Firm Shares shall be made on the Closing Date by wire transfer in federal (same day) funds, payable to the order of the Company upon delivery of the certificates (in form and substance satisfactory to the Underwriters) representing the Firm Shares (or through the facilities of the Depository Trust Company (“**DTC**”)) for the account of the Underwriters. The Firm Shares shall be registered in such name or names and in such authorized denominations as the Representatives may request in writing at least two (2) full Business Days prior to the Closing Date. The Company shall not be obligated to sell or deliver the Firm Shares except upon tender of payment by the Representatives for all of the Firm Shares. The term “**Business Day**” means any day other than a Saturday, a Sunday or a legal holiday or a day on which banking institutions are authorized or obligated by law to close in New York, New York.

1.2 Option Shares.

1.2.1. Option Shares. The Company hereby grants to the Underwriters an option to purchase up to 555,000 additional shares of Common Stock from the Company (the “**Option**”). Such 555,000 additional shares of Common Stock are hereinafter referred to as “**Option Shares**.” The purchase price to be paid per Option Share shall be equal to the price per Firm Share set forth in Section 1.1.1 hereof. The Firm Shares and the Option Shares are hereinafter referred to together as the “**Public Securities**.” The offering and sale of the Public Securities is hereinafter referred to as the “**Offering**.”

1.2.2. Exercise of Option. The Option granted pursuant to Section 1.2.1 hereof may be exercised by the Representatives as to all (at any time) or any part (from time to time) of the Option Shares within 30 days after the Closing Date. The Underwriters shall not be under any obligation to purchase any Option Shares prior to the exercise of the Option. The Option granted hereby may be exercised by the giving of oral notice to the Company from the Representatives, which must be confirmed in writing by overnight mail or facsimile or other electronic transmission setting forth the number of Option Shares to be purchased and the date and time for delivery of and payment for the Option Shares (the “**Option Closing Date**”), which shall not be later than five (5) full Business Days after the date of the notice or such other time as shall be agreed upon by the Company and the Representatives, at the offices of Representatives’ Counsel or at such other place (including remotely by facsimile or other electronic transmission) as shall be agreed upon by the Company and the Representatives. If such delivery and payment for the Option Shares does not occur on the Closing Date, the Option Closing Date will be as set forth in the notice. Upon exercise of the Option with respect to all or any portion of the Option Shares, subject to the terms and conditions set forth herein, (i) the Company shall become obligated to sell to the Underwriters the number of Option Shares specified in such notice and (ii) each of the Underwriters, acting severally and not jointly, shall purchase that portion of the total number of Option Shares then being purchased as set forth in Schedule 1 opposite the name of such Underwriter.

1.2.3. Payment and Delivery. Payment for the Option Shares shall be made on the Option Closing Date by wire transfer in federal (same day) funds, payable to the order of the Company upon delivery to you of certificates (in form and substance satisfactory to the Underwriters) representing the Option Shares (or through the facilities of DTC) for the account of the Underwriters. The Option Shares shall be registered in such name or names and in such authorized denominations as the Representatives may request in writing at least two (2) full Business Days prior to the Option Closing

Date. The Company shall not be obligated to sell or deliver the Option Shares except upon tender of payment by the Representatives for applicable Option Shares.

2. Representations and Warranties of the Company. The Company represents and warrants to the Underwriters as of the Applicable Time (as defined below), as of the Closing Date and as of the Option Closing Date, if any, as follows:

2.1 Filing of Registration Statement.

2.1.1. Pursuant to the Securities Act. The Company has filed with the U.S. Securities and Exchange Commission (the “**Commission**”) a “shelf” registration statement, and an amendment or amendments thereto, on Form S-3 (File No. 333-219794), which registration statement was declared effective on August 18, 2017, for the registration of the sale of certain securities of the Company, including the Public Securities, under the Securities Act of 1933, as amended (the “**Securities Act**”), and the rules and regulations of the Commission promulgated thereunder (the “**Securities Act Regulations**”), which registration statement and any amendments thereto have been prepared by the Company in all material respects, in conformity with the requirements of the Securities Act. Such registration statement, including the exhibits thereto, as amended at the date of this Agreement, is hereinafter called the “**Registration Statement**”. If the Company files a registration statement with the Commission pursuant to Rule 462(b) of the Securities Act Regulations relating to the Public Securities, then, after such filing, any reference herein to the Registration Statement shall also be deemed to include such registration statement filed pursuant to Rule 462(b).

After execution and delivery of this Agreement, the Company will prepare and file with the Commission a prospectus supplement to the base prospectus included in the Registration Statement (the “**Base Prospectus**”) in accordance with the provisions of Rule 430B (“**Rule 430B**”) and Rule 424(b) (“**Rule 424(b)**”) of the Securities Act Regulations; any information included in such prospectus supplement that was omitted from the Registration Statement at the time it became effective but that is deemed to be part of and included in the Registration Statement pursuant to Rule 430B is herein called the “**Rule 430B Information**”; the Base Prospectus, together with any prospectus supplement used in connection with the offering of the Public Securities that omitted Rule 430B Information, is hereinafter collectively called a “**Preliminary Prospectus**.” The Preliminary Prospectus, subject to completion dated January 22, 2018, as amended and supplemented immediately prior to the Applicable Time, is hereinafter called the “**Pricing Prospectus**.” The Base Prospectus, together with the final prospectus supplement which includes the Rule 430B Information, in the form first furnished to the Underwriters for use in connection with the Offering and confirmation of the sales of the Public Securities, is hereinafter collectively called the “**Prospectus**.”

Any reference in this Agreement to the Registration Statement, the Base Prospectus, a Preliminary Prospectus, the Pricing Prospectus or the Prospectus shall be deemed to refer to and include the documents incorporated or deemed incorporated by reference therein (the “**Incorporated Documents**”) pursuant to Item 12 of Form S-3 which were filed under the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”), and the rules and regulations of the Commission promulgated thereunder (the “**Exchange Act Regulations**”), on or before the date of this Agreement, or the issue date of the Base Prospectus, the Preliminary Prospectus, the Pricing Prospectus or the Prospectus, as the case may be; and any reference in this Agreement to the terms “amend,” “amendment” or “supplement” with respect to the Registration Statement, the Base Prospectus, a Preliminary Prospectus, the Pricing Prospectus or the Prospectus shall be deemed to refer to and include the filing of any document under the Exchange Act after the date of this Agreement, or the issue date of the Base Prospectus, the Preliminary Prospectus, the Pricing Prospectus or the Prospectus, as the case may be, deemed to be incorporated therein by reference. All references in this Agreement to financial statements and schedules and any other information which is “contained,” “included,” “described,” “referenced,” “set forth” or “stated” in the

Registration Statement, the Base Prospectus, a Preliminary Prospectus, the Pricing Prospectus or the Prospectus (and all other references of like import) shall be deemed to mean and include all such financial statements and schedules and any other information which is or is deemed to be incorporated by reference in the Registration Statement, the Base Prospectus, a Preliminary Prospectus, the Pricing Prospectus or the Prospectus, as the case may be.

“**Applicable Time**” means 6:00 p.m., Eastern time, on the date of this Agreement.

“**Issuer Free Writing Prospectus**” means any “issuer free writing prospectus,” as defined in Rule 433 of the Securities Act Regulations (“**Rule 433**”), including without limitation any “free writing prospectus” (as defined in Rule 405 of the Securities Act Regulations) relating to the Public Securities that is (i) required to be filed with the Commission by the Company, (ii) a “road show that is a written communication” within the meaning of Rule 433(d)(8)(i), whether or not required to be filed with the Commission, or (iii) exempt from filing with the Commission pursuant to Rule 433(d)(5) (i) because it contains a description of the Public Securities or of the Offering that does not reflect the final terms, in each case in the form filed or required to be filed with the Commission or, if not required to be filed, in the form retained in the Company’s records pursuant to Rule 433(g).

“**Issuer General Use Free Writing Prospectus**” means any Issuer Free Writing Prospectus that is intended for general distribution to prospective investors (other than a “*bona fide* electronic road show,” as defined in Rule 433 (the “**Bona Fide Electronic Road Show**”)), as evidenced by its being specified in Schedule 2-B hereto.

“**Issuer Limited Use Free Writing Prospectus**” means any Issuer Free Writing Prospectus that is not an Issuer General Use Free Writing Prospectus.

“**Pricing Disclosure Package**” means any Issuer General Use Free Writing Prospectus issued at or prior to the Applicable Time, the Pricing Prospectus and the information included on Schedule 2-A hereto, all considered together.

2.1.2. Pursuant to the Exchange Act. The shares of Common Stock are registered pursuant to Section 12(b) under the Exchange Act. The Company has taken no action designed to, or likely to have the effect of, terminating the registration of the shares of Common Stock of the Company under the Exchange Act, nor has the Company received any notification that the Commission is contemplating terminating such registration.

2.1.3. S-3 Eligibility. The Company and the transactions contemplated by this Agreement meet the requirements for, and comply with the conditions for the use of, Form S-3 under the Securities Act, including but not limited to Instruction I.B.1 of Form S-3. The Company is not a shell company (as defined in Rule 405 of the Securities Act Regulations) and has not been a shell company for at least 12 calendar months.

2.2 Stock Exchange Listing. The shares of Common Stock are listed on The NASDAQ Capital Market (the “**NasdaqCM**”) and the Company has taken no action designed to, or likely to have the effect of, delisting the shares from the NasdaqCM, nor has the Company received any notification that the NasdaqCM is contemplating terminating such listing. The Company has filed an application for the listing of additional shares with the NasdaqCM to list the Public Securities.

2.3 No Stop Orders, etc. Neither the Commission nor, to the best of the Company’s knowledge, any state regulatory authority has issued any order preventing or suspending the use of the Registration Statement, any Preliminary Prospectus or the Prospectus or has instituted or, to the best of

the Company's knowledge, threatened to institute, any proceedings with respect to such an order. The Company has complied with each request (if any) from the Commission for additional information.

2.4 Disclosures in Registration Statement.

2.4.1. Compliance with Securities Act and 10b-5 Representation.

(i) Each of the Registration Statement and any post-effective amendment thereto, at the time it became effective, complied in all material respects with the requirements of the Securities Act and the Securities Act Regulations. Each Preliminary Prospectus, including the Base Prospectus filed as part of the Registration Statement as originally filed or as part of any amendment or supplement thereto, and the Prospectus, at the time each was filed with the Commission, complied in all material respects with the requirements of the Securities Act and the Securities Act Regulations. Each Preliminary Prospectus delivered to the Underwriters for use in connection with this Offering and the Prospectus was or will be identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T.

(ii) Neither the Registration Statement nor any amendment thereto, at its effective time, as of the Applicable Time, as of the date of this Agreement, at the Closing Date or at any Option Closing Date (if any), contained, contains or will contain an untrue statement of a material fact or omitted, omits or will omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading.

(iii) No Preliminary Prospectus nor any amendment or supplement thereto (including any prospectus wrapper), as of its issue date, at the time of any filing with the Commission pursuant to Rule 424(b), included, includes or will include an untrue statement of a material fact or omitted, omits or will omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, however, that this representation and warranty shall not apply to the Underwriters' Information (as defined below).

(iv) The Pricing Disclosure Package, as of the Applicable Time, as of the date of this Agreement, at the Closing Date or at any Option Closing Date (if any), did not, does not and will not include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; and each Issuer Limited Use Free Writing Prospectus hereto complies in all material respects with the requirements of the Securities Act and the Securities Act Regulations, has been or will be (within the time period specified in Rule 433) filed in accordance with the Securities Act (to the extent required thereby) and does not conflict with the information contained in the Registration Statement, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus; and each such Issuer Limited Use Free Writing Prospectus, as supplemented by and taken together with the Preliminary Prospectus filed prior to the first use of such Issuer Free Writing Prospectus, did not and as of the Closing Date and as of the Option Closing Date (if any), as the case may be, will not, include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading; provided, however, that this representation and warranty shall not apply to statements made or statements omitted in reliance upon and in conformity with written information furnished to the Company with respect to the Underwriters by the Representatives expressly for use in the Registration Statement, the Pricing Prospectus or the Prospectus or any amendment thereof or supplement thereto. The parties acknowledge and agree that such information provided by or on behalf of any Underwriter consists solely of the following disclosure contained in the "Underwriting" section of the Prospectus: the concession and reallowance figures appearing in the third paragraph under the caption "Underwriting" and the information contained in the

seventh, thirteenth, fourteenth and sixteenth paragraphs under the caption “Underwriting” (the “**Underwriters’ Information**”).

(v) Neither the Prospectus nor any amendment or supplement thereto (including any prospectus wrapper), as of its issue date, at the time of any filing with the Commission pursuant to Rule 424(b), at the Closing Date or at any Option Closing Date, included, includes or will include an untrue statement of a material fact or omitted, omits or will omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, however, that this representation and warranty shall not apply to the Underwriters’ Information.

(vi) The documents incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus, when they became effective or were filed with the Commission, as the case may be, conformed in all material respects to the requirements of the Securities Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder and none of such documents contained any untrue statement of a material fact or omitted to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; and any further documents so filed and incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus, when such documents become effective or are filed with the Commission, as the case may be, will conform in all material respects to the requirements of the Securities Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder, and will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

2.4.2. Disclosure of Agreements. The agreements and documents described in the Registration Statement, the Pricing Disclosure Package and the Prospectus conform in all material respects to the descriptions thereof contained or incorporated by reference therein and there are no agreements or other documents required by the Securities Act and the Securities Act Regulations, to be described in the Registration Statement, the Pricing Disclosure Package and the Prospectus or to be filed with the Commission as exhibits to the Registration Statement or to be incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus, that have not been so described or filed or incorporated by reference. Each agreement or other instrument (however characterized or described) to which the Company is a party or by which it is or may be bound or affected and (i) that is referred to or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus, or (ii) is material to the Company’s business, has been duly authorized and validly executed by the Company, is in full force and effect in all material respects and is enforceable against the Company and, to the Company’s knowledge, the other parties thereto, in accordance with its terms, except (x) as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting creditors’ rights generally, (y) as enforceability of any indemnification or contribution provision may be limited under the federal and state securities laws, and (z) that the remedy of specific performance and injunctive and other forms of equitable relief may be subject to the equitable defenses and to the discretion of the court before which any proceeding therefor may be brought. None of such agreements or instruments has been assigned by the Company, and neither the Company nor, to the best of the Company’s knowledge, any other party is in default thereunder and, to the best of the Company’s knowledge, no event has occurred that, with the lapse of time or the giving of notice, or both, would constitute a default thereunder. To the best of the Company’s knowledge, performance by the Company of the material provisions of such agreements or instruments will not result in a violation of any existing applicable law, rule, regulation, judgment, order or decree of any governmental agency or court, domestic or foreign, having jurisdiction over the Company or any of its

assets or businesses (each, a “**Governmental Entity**”), including, without limitation, those relating to environmental laws and regulations.

2.4.3. Prior Securities Transactions. No unregistered securities of the Company have been sold on behalf of, or for the benefit of, any person or persons controlling, controlled by or under common control with the Company, and no securities of the Company have been sold by the Company during the six-month period preceding the Closing Date, except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Preliminary Prospectus.

2.5 Changes After Dates in Registration Statement.

2.5.1. No Material Adverse Change. Since the respective dates as of which information is given in the Registration Statement, the Pricing Disclosure Package and the Prospectus, except as otherwise specifically stated therein: (i) there has been no material adverse change, nor any change or development that, singularly or in the aggregate, would involve a material adverse change or a prospective material adverse change, in or affecting the condition (financial or otherwise), results of operations, business, assets or prospects of the Company (a “**Material Adverse Change**”); (ii) there have been no material transactions entered into by the Company, other than as contemplated pursuant to this Agreement; and (iii) no officer or director of the Company has resigned from any position with the Company.

2.5.2. Recent Securities Transactions, etc. Subsequent to the respective dates as of which information is given in the Registration Statement, the Pricing Disclosure Package and the Prospectus, and except as may otherwise be indicated or contemplated herein or disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company has not: (i) issued any securities or incurred any liability or obligation, direct or contingent, for borrowed money; or (ii) declared or paid any dividend or made any other distribution on or in respect to its capital stock.

2.6 Commission Filings. Since January 1, 2014, the Company has made all filings with the Commission required under the Exchange Act.

2.7 Independent Accountants. To the knowledge of the Company, Ernst & Young LLP (the “**Auditor**”), whose report is filed with the Commission and included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus is an independent registered public accounting firm as required by the Securities Act and the Securities Act Regulations and the Public Company Accounting Oversight Board. The Auditor has not, during the periods covered by the financial statements included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus, provided to the Company any non-audit services, as such term is used in Section 10A(g) of the Exchange Act.

2.8 Financial Statements, etc. The financial statements, including the notes thereto and supporting schedules, included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus, fairly present the financial position and the results of operations of the Company at the dates and for the periods to which they apply; and such financial statements have been prepared in conformity with U.S. generally accepted accounting principles (“**GAAP**”), consistently applied throughout the periods involved (provided that unaudited interim financial statements are subject to year end audit adjustments that are not expected to be material in the aggregate) and the supporting schedules included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package or the Prospectus present fairly the information required to be stated therein. Each of the Registration Statement, the Pricing Disclosure Package and the Prospectus discloses all material off-balance sheet transactions, arrangements, obligations (including contingent obligations), and other relationships of the Company with unconsolidated entities or other persons that may result in a material

current or future effect on the Company's financial condition, changes in financial condition, results of operations, liquidity, capital expenditures, capital resources, or significant components of revenues or expenses. Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, (a) the Company has not incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions other than in the ordinary course of business, (b) the Company has not declared or paid any dividends or made any distribution of any kind with respect to its capital stock, (c) there has not been any change in the capital stock of the Company, or, other than in the course of business, any grants under any stock compensation plan, and (d) there has not been any Material Adverse Change in the Company's long-term or short-term debt.

2.9 Authorized Capital; Options, etc. The Company had, at the date or dates indicated in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the duly authorized, issued and outstanding capitalization as set forth therein. Based on the assumptions stated in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company will have on the Closing Date the adjusted stock capitalization set forth therein. Except as set forth in, or contemplated by, the Registration Statement, the Pricing Disclosure Package and the Prospectus, as of the Applicable Time and on the Closing Date and any Option Closing Date, there will be no stock options, warrants, or other rights to purchase or otherwise acquire any authorized, but unissued shares of Common Stock of the Company or any security convertible into or exercisable for shares of Common Stock of the Company, or any contracts or commitments to issue or sell shares of Common Stock or any such options, warrants, rights or convertible securities.

2.10 Valid Issuance of Securities, etc.

2.10.1. Outstanding Securities. All issued and outstanding securities of the Company issued prior to the transactions contemplated by this Agreement have been duly authorized and validly issued and are fully paid and non-assessable; the holders thereof have no rights of rescission with respect thereto, and are not subject to personal liability by reason of being such holders; and none of such securities were issued in violation of the preemptive rights of any holders of any security of the Company or similar contractual rights granted by the Company. The authorized shares of Common Stock conform in all material respects to all statements relating thereto contained in the Registration Statement, the Pricing Disclosure Package and the Prospectus. The offers and sales of the outstanding shares of Common Stock were at all relevant times either registered under the Securities Act and the applicable state securities or "blue sky" laws or, based in part on the representations and warranties of the purchasers of such shares, exempt from such registration requirements.

2.10.2. Securities Sold Pursuant to this Agreement. The Public Securities have been duly authorized for issuance and sale and, when issued and paid for in accordance with this Agreement, will be validly issued, fully paid and non-assessable; the Public Securities are not and will not be subject to the preemptive rights of any holders of any security of the Company or similar contractual rights granted by the Company; and all corporate action required to be taken for the authorization, issuance and sale of the Public Securities has been duly and validly taken. The Public Securities conform in all material respects to all statements with respect thereto contained in the Registration Statement, the Pricing Disclosure Package and the Prospectus.

2.11 Registration Rights of Third Parties. Except as set forth in the Registration Statement, the Pricing Disclosure Package and the Prospectus, or on Schedule 4 hereto (in each case, which registration rights shall have been validly exercised or waived in connection with the filing of the Registration Statement and the Offering), no holders of any securities of the Company or any rights exercisable for or convertible or exchangeable into securities of the Company have the right to require the Company to register any such securities of the Company under the Securities Act or to include any such securities in a registration statement to be filed by the Company.

2.12 Validity and Binding Effect of Agreements. This Agreement has been duly and validly authorized, executed and delivered by the Company, and constitutes, the valid and binding agreement of the Company, enforceable against the Company in accordance with its terms, except: (i) as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting creditors' rights generally; (ii) as enforceability of any indemnification or contribution provision may be limited under the federal and state securities laws; and (iii) that the remedy of specific performance and injunctive and other forms of equitable relief may be subject to the equitable defenses and to the discretion of the court before which any proceeding therefor may be brought.

2.13 No Conflicts, etc. The execution, delivery and performance by the Company of this Agreement and all ancillary documents, the consummation by the Company of the transactions herein and therein contemplated and the compliance by the Company with the terms hereof and thereof do not and will not, with or without the giving of notice or the lapse of time or both: (i) result in a breach of, or conflict with any of the terms and provisions of, or constitute a default under, or result in the creation, modification, termination or imposition of any lien, charge or encumbrance upon any property or assets of the Company pursuant to the terms of any agreement or instrument to which the Company is a party; (ii) result in any violation of the provisions of the Company's Certificate of Incorporation (as the same may be amended or restated from time to time, the "**Charter**") or the by-laws of the Company; or (iii) violate any existing applicable law, rule, regulation, judgment, order or decree of any Governmental Entity as of the date hereof (including, without limitation, those promulgated by the United States Food and Drug Administration (the "**FDA**") or by any foreign, federal, state or local regulatory authority performing functions similar to those performed by the FDA), except in the case of (i) or (iii) above for such violations as would not, individually or in the aggregate, result in a Material Adverse Change.

2.14 No Defaults; Violations. No material default exists in the due performance and observance of any term, covenant or condition of any material license, contract, indenture, mortgage, deed of trust, note, loan or credit agreement, or any other agreement or instrument evidencing an obligation for borrowed money, or any other material agreement or instrument to which the Company is a party or by which the Company may be bound or to which any of the properties or assets of the Company is subject. The Company is not (i) in violation of any term or provision of its Charter or by-laws, or (ii) except as would not reasonably be expected to result in a Material Adverse Change, in violation of any franchise, license, permit, applicable law, rule, regulation, judgment or decree of any Governmental Entity.

2.15 Corporate Power; Licenses; Consents.

2.15.1. Conduct of Business. Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company has all requisite corporate power and authority, and has all necessary authorizations, approvals, orders, licenses, certificates and permits of and from all governmental regulatory officials and bodies that it needs as of the date hereof to conduct its business purpose as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus. The disclosures in the Registration Statement, the Pricing Disclosure Package and the Prospectus concerning the effects of federal, state, local and foreign regulation on the Offering and the Company's business as currently contemplated are correct in all material respects and no other such regulations are required to be disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus which are not so disclosed.

2.15.2. Transactions Contemplated Herein. The Company has all corporate power and authority to enter into this Agreement and to carry out the provisions and conditions hereof and the transactions contemplated hereby, and all consents, authorizations, approvals and orders required in connection therewith have been obtained. No consent, authorization or order of, and no filing with, any court, government agency or other body is required for the valid issuance, sale and delivery of the Public

Securities and the consummation of the transactions and agreements contemplated by this Agreement and as contemplated by the Registration Statement, the Pricing Disclosure Package and the Prospectus, except with respect to applicable federal and state securities laws and the rules and regulations of the Financial Industry Regulatory Authority, Inc. (“FINRA”).

2.16 Litigation: Governmental Proceedings. There is no action, suit, proceeding, inquiry, arbitration, investigation, litigation or governmental proceeding pending or, to the Company’s knowledge, threatened against, or involving the Company or, to the Company’s knowledge, any executive officer or director which would, individually or in the aggregate, reasonably be expected to result in a Material Adverse Change.

2.17 Good Standing. The Company has been duly organized and is validly existing as a corporation and is in good standing under the laws of the State of Delaware as of the date hereof, and is duly qualified to do business and is in good standing in each other jurisdiction in which its ownership or lease of property or the conduct of business requires such qualification, except where the failure to qualify, singularly or in the aggregate, would not have or reasonably be expected to result in a Material Adverse Change.

2.18 Insurance. The Company carries or is entitled to the benefits of insurance, with reputable insurers, in such amounts and covering such risks which the Company believes are adequate, and all such insurance is in full force and effect. The Company has no reason to believe that it will not be able (i) to renew its existing insurance coverage as and when such policies expire or (ii) to obtain comparable coverage from similar institutions as may be necessary or appropriate to conduct its business as now conducted and at a cost that would not result in a Material Adverse Change.

2.19 Transactions Affecting Disclosure to FINRA.

2.19.1. Finder’s Fees. Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, there are no claims, payments, arrangements, agreements or understandings relating to the payment of a finder’s, consulting or origination fee by the Company or any Insider with respect to the sale of the Public Securities hereunder or any other arrangements, agreements or understandings of the Company or, to the Company’s knowledge, any of its stockholders that may affect the Underwriters’ compensation, as determined by FINRA.

2.19.2. Payments Within Twelve (12) Months. Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company has not made any direct or indirect payments (in cash, securities or otherwise) to: (i) any person, as a finder’s fee, consulting fee or otherwise, in consideration of such person raising capital for the Company or introducing to the Company persons who raised or provided capital to the Company; (ii) any FINRA member; or (iii) any person or entity that has any direct or indirect affiliation or association with any FINRA member, within the twelve (12) months prior to the date of this Agreement, other than the payment to the Underwriters as provided hereunder in connection with the Offering.

2.19.3. Use of Proceeds. None of the net proceeds of the Offering will be paid by the Company to any participating FINRA member or its affiliates, except as specifically authorized herein.

2.19.4. FINRA Affiliation. There is no (i) officer or director of the Company, (ii) beneficial owner of 5% or more of any class of the Company’s securities or (iii) beneficial owner of the Company’s unregistered equity securities which were acquired during the 180-day period immediately preceding the filing of the Registration Statement that is an affiliate or associated person of a FINRA member participating in the Offering (as determined in accordance with the rules and regulations of FINRA).

2.19.5. Information. All information provided by the Company in its FINRA Questionnaire to Representatives' Counsel specifically for use by Representatives' Counsel in connection with its determination of the Offering's compliance with applicable FINRA rules is true, correct and complete in all material respects.

2.20 Foreign Corrupt Practices Act. None of the Company or, to the Company's knowledge, any director, officer, agent, employee or affiliate of the Company or any other person acting on behalf of the Company, has (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expense relating to political activity; (ii) made or taken an act in furtherance of an offer, promise or authorization of any direct or indirect unlawful payment or benefit to any foreign or domestic government official or employee, including of any government-owned or controlled entity or of a public international organization, or any person acting in an official capacity for or on behalf of any of the foregoing, or any political party or party official or candidate for political office; (iii) violated or is in violation of any provision of the Foreign Corrupt Practices Act of 1977, as amended, or any applicable law or regulation implementing the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions, or committed an offence under the Bribery Act 2010 of the United Kingdom or any other applicable anti-bribery or anti-corruption law; or (iv) made, offered, agreed, requested or taken an act in furtherance of any unlawful bribe or other unlawful benefit, including, without limitation, any rebate, payoff, influence payment, kickback or other unlawful or improper payment or benefit.

2.21 Compliance with OFAC. None of the Company or, to the Company's knowledge, any director, officer, agent, employee or affiliate of the Company or any other person acting on behalf of the Company, is currently subject to, or the target of, any sanctions administered or enforced by the U.S. government, (including, without limitation, the Office of Foreign Assets Control of the U.S. Department of the Treasury ("**OFAC**") or the U.S. Department of State and including, without limitation, the designation as a "specially designated national" or "blocked person"), the United Nations Security Council ("**UNSC**"), the European Union, Her Majesty's Treasury ("**HMT**") or other relevant sanctions authority (collectively, "**Sanctions**"), nor is the Company located, organized or resident in a country or territory that is the subject or target of Sanctions, including, without limitation, Cuba, Iran, North Korea, Syria and Crimea (each, a "**Sanctioned Country**"); and the Company will not, directly or indirectly, use the proceeds of the Offering hereunder, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other person or entity (i) to fund or facilitate any activities of or business with any person that, at the time of such funding or facilitation, is the subject or target of Sanctions, (ii) to fund or facilitate any activities of or business in any Sanctioned Country or (iii) in any other manner that will result in a violation by any person (including any person participating in the transaction, whether as underwriter, advisor, investor or otherwise) of Sanctions. For the past five years, the Company has not knowingly engaged in and are not now knowingly engaged in any dealings or transactions with any person that at the time of the dealing or transaction is or was the subject or the target of Sanctions or with any Sanctioned Country.

2.22 Money Laundering Laws. The operations of the Company are and have been conducted at all times in compliance with applicable financial recordkeeping and reporting requirements, including those of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the applicable money laundering statutes of all jurisdictions where the Company conducts business, the rules and regulations thereunder and any related or similar rules, regulations or guidelines issued, administered or enforced by any Governmental Entity (collectively, the "**Money Laundering Laws**"); and no action, suit or proceeding by or before any Governmental Entity involving the Company with respect to the Money Laundering Laws is pending or, to the best knowledge of the Company, threatened.

2.23 Environmental Matters. The Company is in compliance in all material respects with all rules, laws and regulation relating to the use, treatment, storage and disposal of toxic substances and protection of health or the environment (“**Environmental Law**”) which are applicable to its business; (ii) the Company has not received any written notice from any governmental authority or third party of an asserted claim under Environmental Laws; (iii) the Company has received all permits, licenses or other approvals required of it under applicable Environmental Laws to conduct its business and is in compliance with all terms and conditions of any such permit, license or approval in all material respects; (iv) to the Company’s knowledge, no facts currently exist that will require the Company to make future material capital expenditures to comply with Environmental Laws; and (v) no property which is or has been owned, leased or occupied by the Company has been designated as a Superfund site pursuant to the Comprehensive Environmental Response, Compensation of Liability Act of 1980, as amended (42 U.S.C. Section 9601, et. seq.) (“**CERCLA 1980**”) or otherwise designated as a contaminated site under applicable state or local law. The Company has not been named as a “potentially responsible party” under CERCLA 1980.

2.24 Lock-Up Agreements.

2.24.1. Schedule 3 hereto contains a complete and accurate list of the Company’s officers and directors (collectively, the “**Lock-Up Parties**”). The Company has caused each of the Lock-Up Parties to deliver to the Representatives executed Lock-Up Agreements, in the form attached hereto as Exhibit A, prior to the execution of this Agreement.

2.24.2. Without the prior written consent of the Representatives, for a period of 90 days after the date of this Agreement, the Company shall not (i) offer, pledge, issue, sell, or file with the Commission any registration statement under the Securities Act (other than on Form S-8 or on any successor form) relating to, or otherwise transfer or dispose of, directly or indirectly, any equity securities of the Company (or any securities convertible into, exercisable for or exchangeable for equity securities of the Company), or publicly disclose the intention to offer, pledge, issue, sell, file, transfer or dispose, or (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of any equity securities of the Company (or any securities convertible into, exercisable for or exchangeable for equity securities of the Company), whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of any equity securities of the Company (or any securities convertible into, exercisable for or exchangeable for equity securities of the Company), in cash or otherwise, except for (A) the offer, issuance and sale of the Public Securities pursuant to this Agreement, (B) the issuance of shares pursuant to the Company’s Amended and Restated 2004 Employee, Director and Consultant Stock Plan, 2012 Equity Incentive Plan, the Employee Stock Purchase Plan, and/or the 2016 Long-Term Incentive Plan as described in the Registration Statement and the Prospectus, and (C) securities issued in connection with a transaction that includes a commercial relationship (including joint ventures, marketing or distribution arrangements, collaboration agreements or intellectual property license agreements) or any acquisition of assets or not less than a majority or controlling portion of the equity of another entity; provided that the aggregate number of shares or securities issued pursuant to this clause (C) shall not exceed 5.0% of the total number of outstanding shares of Common Stock immediately following the issuance and sale of the Firm Shares pursuant hereto. In the event that during this period, (x) any shares are issued pursuant to the Company’s existing stock option plan or bonus plan that are exercisable during such 90-day period or (y) any registration is effected on Form S-8 or on any successor form relating to shares that are exercisable during such 90-day period, the Company shall obtain the written agreement of such grantee or purchaser or holder of such registered securities that, for a period of 90 days after the date of this Agreement, such person will not, without the prior written consent of the Representatives, (i) offer for sale, sell, pledge, distribute, grant any option for the sale of, or otherwise transfer or dispose of, directly or indirectly, or exercise any registration rights with respect to, any shares of Common Stock (or any securities convertible into, exercisable for, or exchangeable for any shares of Common Stock) or publicly disclose the intention to offer for sale, sell,

pledge, distribute, grant any option for the sale of, or otherwise transfer or dispose or (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of any shares of Common Stock (or any securities convertible into, exercisable for or exchangeable for shares of Common Stock). Notwithstanding the foregoing, including without limitation in respect of shares issued pursuant to clauses (A), (B) and (C) above, the Company represents and warrants that each such grantee or purchaser or holder of such registered securities during such 90-day period shall be subject to similar lock-up restrictions as set forth on Exhibit A attached hereto and the Company shall enforce such rights and impose stop-transfer restrictions on any such sale or other transfer or disposition of such shares until the end of the applicable period.

2.25 Subsidiaries. The Company has no direct or indirect subsidiary or subsidiaries and does not control, directly or indirectly, any corporation, partnership, joint venture, association or other business organization.

2.26 Related Party Transactions. There are no business relationships or related party transactions involving the Company or any other person required to be described or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus that have not been described or incorporated by reference as required.

2.27 Board of Directors. The Board of Directors of the Company is comprised of the persons set forth in the Pricing Prospectus, the Prospectus and the documents incorporated by reference therein. The qualifications of the persons serving as board members and the overall composition of the board comply with the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder (the “**Sarbanes-Oxley Act**”) applicable to the Company and the listing rules of the NASDAQ Stock Market LLC. At least one member of the Audit Committee of the Board of Directors of the Company qualifies as a “financial expert,” as such term is defined under the Sarbanes-Oxley Act and the listing rules of the NASDAQ Stock Market LLC. In addition, at least a majority of the persons serving on the Board of Directors of the Company qualify as “independent,” as defined under the listing rules of the NASDAQ Stock Market LLC.

2.28 Sarbanes-Oxley Compliance.

2.28.1. Disclosure Controls. The Company has developed and currently maintains disclosure controls and procedures that comply with Rule 13a-15 or 15d-15 under the Exchange Act, and such controls and procedures are effective to ensure that all material information concerning the Company are made known on a timely basis to the individuals responsible for the preparation of the Company’s Exchange Act filings and other public disclosure documents.

2.28.2. Compliance. The Company is, at the Applicable Time, and on the Closing Date or any Option Closing Date will be, in material compliance with the provisions of the Sarbanes-Oxley Act applicable to it, and has implemented or will implement such programs and taken reasonable steps to ensure the Company’s future compliance (not later than the relevant statutory and regulatory deadlines therefor) with all of the material provisions of the Sarbanes-Oxley Act.

2.29 Accounting Controls. The Company maintains systems of “internal control over financial reporting” (as defined under Rules 13-a15 and 15d-15 under the Exchange Act) that comply with the requirements of the Exchange Act and have been designed by, or under the supervision of, its respective principal executive and principal financial officers, or persons performing similar functions, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP, including, but not limited to, internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management’s general or specific authorizations; (ii) transactions are recorded as

necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Company is not aware of any material weaknesses in its internal controls. The Company's auditors and the Audit Committee of the Board of Directors of the Company have been advised of: (i) all significant deficiencies and material weaknesses in the design or operation of internal controls over financial reporting which are known to the Company's management and that have adversely affected or are reasonably likely to adversely affect the Company's ability to record, process, summarize and report financial information; and (ii) any fraud known to the Company's management, whether or not material, that involves management or other employees who have a significant role in the Company's internal controls over financial reporting.

2.30 No Investment Company Status. The Company is not and, after giving effect to the Offering and the application of the proceeds thereof as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, will not be, an "investment company," as defined in the Investment Company Act of 1940, as amended.

2.31 No Labor Disputes. No labor dispute with the employees of the Company exists or, to the knowledge of the Company, is imminent.

2.32 Intellectual Property Rights. Except (i) as described in the Registration Statement, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or (ii) as would not, individually or in the aggregate, result in a Material Adverse Change, (A) to the Company's knowledge, the Company owns or possesses the right to use all patents, trademarks, trademark registrations, service marks, service mark registrations, trade names, copyrights, licenses, inventions, software, databases, know-how, Internet domain names, trade secrets and other unpatented and/or unpatentable proprietary or confidential technology and information, systems or procedures, and other material intellectual property (collectively, "**Intellectual Property**") necessary to carry on its business as currently conducted, and as proposed to be conducted, in each case as described in the Registration Statement, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus (collectively, "**Company Intellectual Property**") and the Company is not aware of any claim to the contrary or any challenge by any other person or entity to the rights of the Company with respect to the foregoing; (B) each of the agreements described in the Registration Statement, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus, which include licensing or transfer of Intellectual Property (each an "**Intellectual Property Agreement**") are valid, binding upon, and enforceable by or against the Company in accordance with its terms, except as enforceability may be limited by bankruptcy, insolvency or similar laws affecting the rights of creditors generally and general equitable principles; (C) the Company has complied in all material respects with, and is not in breach nor has received any asserted or threatened claim of breach of, any Intellectual Property Agreement, and the Company has no knowledge of any breach or anticipated breach by any other person to any Intellectual Property Agreement; (D) the Company has not received any notice from, and there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by, others that the Company infringes or otherwise violates, or would, upon the commercialization of any product or service described in the Registration Statement, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus as under development, infringe or violate, any Intellectual Property or franchise right of any person or entity; (E) the Company has not instituted, and does not currently plan to institute, any claim against any person or entity for infringement of the Company Intellectual Property; (F) to the Company's knowledge, no person or entity infringes or is otherwise in conflict with the Company Intellectual Property; (G) the Company has taken all steps reasonably necessary to protect, maintain and safeguard its rights in all Company Intellectual Property, including the execution of appropriate nondisclosure and confidentiality agreements; (H) the consummation of the transactions contemplated by this Agreement will not result in the loss or impairment of or payment of any additional amounts with respect to, nor require the consent of

any other person in respect of, the Company's right to own, use, or hold for use any of the Company Intellectual Property as owned, used or held for use in the conduct of its business; (I) the granted and/or issued Company Intellectual Property owned or licensed by the Company is currently in force and has been properly maintained and has not been adjudged by a court of competent jurisdiction as invalid or unenforceable, in whole or in part, and there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others challenging the validity or scope of any such Intellectual Property nor to the Company's knowledge is there any reasonable basis for such a claim; and (J) the pending government registered Company Intellectual Property owned or licensed by the Company is current, up-to-date and in good standing, and the Company has followed in all material respects all relevant laws, rules, procedures and requirements in the filing, prosecution and maintenance of such pending government registered Intellectual Property in the relevant jurisdiction to which such government registered Company Intellectual Property is pending. The Company has at all times complied in all material respects with all applicable laws relating to privacy, data protection, and the collection and use of personal information collected, used, or held for use by the Company in the conduct of the Company's business. No claims have been asserted or, to the Company's knowledge, threatened against the Company alleging a violation of any person's privacy or personal information or data rights, and the consummation of the transactions contemplated hereby will not breach or otherwise cause any violation of any law related to privacy, data protection, or the collection and use of personal information collected, used, or held for use by the Company in the conduct of the Company's business. The Company takes reasonable measures to ensure that such information is protected against unauthorized access, use, modification, or other misuse. The Company is not a party to or bound by any options, licenses or agreements with respect to the Intellectual Property of any other person or entity that are required to be set forth in the Registration Statement, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus and are not described therein.

2.33 Taxes. The Company has filed all returns (as hereinafter defined) required to be filed with taxing authorities prior to the date hereof or has duly obtained extensions of time for the filing thereof. The Company has paid all taxes (as hereinafter defined) shown as due on such returns that were filed and has paid all taxes imposed on or assessed against the Company. The provisions for taxes payable, if any, shown on the financial statements filed with or as part of the Registration Statement are sufficient for all accrued and unpaid taxes, whether or not disputed, and for all periods to and including the dates of such consolidated financial statements. No issues have been raised (and are currently pending) by any taxing authority in connection with any of the returns or taxes asserted as due from the Company, and no waivers of statutes of limitation with respect to the returns or collection of taxes have been given by or requested from the Company. The term "**taxes**" mean all federal, state, local, foreign and other net income, gross income, gross receipts, sales, use, ad valorem, transfer, franchise, profits, license, lease, service, service use, withholding, payroll, employment, excise, severance, stamp, occupation, premium, property, windfall profits, customs, duties or other taxes, fees, assessments or charges of any kind whatever, together with any interest and any penalties, additions to tax or additional amounts with respect thereto. The term "**returns**" means all returns, declarations, reports, statements and other documents required to be filed in respect to taxes.

2.34 ERISA Compliance. The Company and any "employee benefit plan" (as defined under the Employee Retirement Income Security Act of 1974, as amended, and the regulations and published interpretations thereunder (collectively, "**ERISA**")) established or maintained by the Company or its "ERISA Affiliates" (as defined below) are in compliance in all material respects with ERISA. "**ERISA Affiliate**" means, with respect to the Company, any member of any group of organizations described in Sections 414(b),(c),(m) or (o) of the Internal Revenue Code of 1986, as amended, and the regulations and published interpretations thereunder (the "**Code**") of which the Company is a member. No "reportable event" (as defined under ERISA) has occurred or is reasonably expected to occur with respect to any "employee benefit plan" established or maintained by the Company or any of its ERISA Affiliates. No "employee benefit plan" established or maintained by the Company or any of its ERISA Affiliates, if such

“employee benefit plan” were terminated, would have any “amount of unfunded benefit liabilities” (as defined under ERISA). Neither the Company nor any of its ERISA Affiliates has incurred or reasonably expects to incur any material liability under (i) Title IV of ERISA with respect to termination of, or withdrawal from, any “employee benefit plan” or (ii) Sections 412, 4971, 4975 or 4980B of the Code. Each “employee benefit plan” established or maintained by the Company or any of its ERISA Affiliates that is intended to be qualified under Section 401(a) of the Code is so qualified and, to the knowledge of the Company, nothing has occurred, whether by action or failure to act, which would cause the loss of such qualification.

2.35 Compliance with Laws. Except as would not, individually or in the aggregate, result in a Material Adverse Change, the Company: (A) possesses all material licenses, certificates, approvals, clearances, authorizations, permits and supplements or amendments thereto (“**Authorizations**”) required by all statutes, rules, or regulations applicable to the Company (“**Applicable Laws**”) and each such Authorization is valid and in full force and effect and is not in material violation of any term of any other Authorization; (B) has not received notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any governmental authority or third party alleging any violation of any Applicable Laws or Authorizations and has no knowledge that any such governmental authority or third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding; (C) has not received notice that any governmental authority has taken, is taking or intends to take action to limit, suspend, modify or revoke any Authorizations and has no knowledge that any such governmental authority is considering such action; and (D) has filed, obtained, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Applicable Laws or Authorizations and that all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and correct on the date filed (or were corrected or supplemented by a subsequent submission).

2.36 Ineligible Issuer. As of the time of filing of the Registration Statement and any post-effective amendment thereto, at the earliest time thereafter that the Company or any offering participant made a bona fide offer (within the meaning of Rule 164(h)(2) under the Securities Act) of the Public Securities, as of the date of this Agreement and as of the Closing Date or any Option Closing Date, the Company was not, is not, and will not be, an “ineligible issuer” as defined in Rule 405 under the Securities Act.

2.37 Industry Data. The statistical and market-related data included in each of the Registration Statement, the Pricing Disclosure Package and the Prospectus are based on or derived from sources that the Company reasonably and in good faith believes are reliable and accurate or represent the Company’s good faith estimates that are made on the basis of data derived from such sources.

2.38 Emerging Growth Company. Since the date of the preliminary prospectus included in the registration statement filed by the Company with the Commission on January 8, 2013, through the date hereof, the Company has been and is an “emerging growth company,” as defined in Section 2(a) of the Securities Act (an “**Emerging Growth Company**”).

2.39 Testing-the-Waters Materials. The Company has not engaged in, and has not authorized any other person to engage in, any Testing-the-Waters Communication related to the Offering. “**Testing-the-Waters Communication**” means any oral or written communication with potential investors undertaken in reliance on Section 5(d) of the Securities Act.

2.40 Regulatory.

2.40.1. Except as set forth in the Pricing Disclosure Package and the Prospectus, the Company has such permits, licenses, certificates, approvals, clearances, authorizations or amendments thereto (the “**Regulatory Permits**”) issued by the appropriate federal, state, local or foreign regulatory agencies or bodies necessary to conduct the business of the Company as described in the Registration Statement, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus and any Issuer Free Writing Prospectus, including, without limitation, any Investigational New Drug Application (“**IND**”), New Drug Application (“**NDA**”), or Biologics License Application (“**BLA**”) as required by the FDA or other authorizations issued by federal, state, local or foreign agencies or bodies, including Health Canada, engaged in the regulation of pharmaceuticals and biological products such as those being developed by the Company (collectively, “**Governmental Authorities**,” and each, a “**Governmental Authority**”), except for any of the foregoing that would not, individually or in the aggregate, result in a Material Adverse Change; the Company is in compliance with the requirements of the Regulatory Permits, and all of the Regulatory Permits are valid and in full force and effect, in each case in all material respects; the Company has not received any notice of proceedings relating to the revocation, termination, modification or impairment of rights of any of the Regulatory Permits that, individually or in the aggregate, if the subject of an unfavorable decision, ruling or finding, could reasonably be expected to result in a Material Adverse Change; the Company has not failed to file with the FDA or any Governmental Authority any required application, submission, report, document, notice, supplement, or amendment, and all such filings were in material compliance with applicable laws when filed and have been supplemented as necessary to remain in material compliance with applicable laws and no material deficiencies have been asserted by the FDA or any Governmental Authority with respect to any such filings.

2.40.2. To the Company’s knowledge, the research, studies and clinical trials conducted by or on behalf of the Company or being relied on by the Company have been and, if still pending, are being conducted, in all material respects, in accordance with experimental protocols and procedures pursuant to all applicable laws and Regulatory Permits and the results of such research, studies and clinical trials described in the Registration Statement, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus and any Issuer Free Writing Prospectus, are accurate and fairly present, in all material respects, the data derived from such research, studies, and clinical trials; any research, studies and clinical trials conducted by or on behalf of the Company if still pending, are, to the Company’s knowledge, being conducted in all material respects in accordance with professional and scientific standards and the applicable requirements of the FDA and other Governmental Authorities; neither the Company, nor to the Company’s knowledge any Physician Sponsor, has received any notice or correspondence from the FDA nor any Governmental Authority requiring the termination, suspension or modification of any such study or clinical trial; and except to the extent disclosed in the Registration Statement, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus and any Issuer Free Writing Prospectus, the Company is not aware of any research, study or clinical trial, the results of which the Company believes reasonably call into question the results described or referred to in the Registration Statement, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus and any Issuer Free Writing Prospectus.

2.40.3. Neither the Company nor, to the Company’s knowledge, any of its directors, officers, employees or agents has been convicted of any crime under any Applicable Laws that would be reasonably likely to lead to FDA debarment or has been the subject of an FDA debarment proceeding. The Company has not been nor is it now subject to FDA’s Application Integrity Policy. To the Company’s knowledge, neither the Company, nor any of its directors, officers, employees or agents, has made, or caused the making of, any false statements on, or material omissions from, any other records or documentation prepared or maintained to comply with the requirements of the FDA or any other Governmental Entity.

2.41 Forward-Looking Statements. No forward-looking statement (within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act) contained in the Registration Statement, the Pricing Disclosure Package or the Prospectus has been made or reaffirmed by the Company without a reasonable basis or has been disclosed by the Company other than in good faith.

2.42 Exchange Act Reports. The Company has filed in a timely manner all reports required to be filed pursuant to Sections 13(a), 13(e), and 14 of the Exchange Act during the preceding 12 months.

2.43 eXtensible Business Reporting Language. The interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement fairly presents the information called for in all material respects and has been prepared in accordance with the Commission's rules and guidelines applicable thereto.

3. Covenants of the Company. The Company covenants and agrees as follows:

3.1 Amendments to Registration Statement. The Company shall deliver to the Representatives, prior to filing, any amendment or supplement to the Registration Statement or Prospectus proposed to be filed after the date of this Agreement and not file any such amendment or supplement to which the Representatives shall reasonably object in writing.

3.2 Federal Securities Laws.

3.2.1. Compliance. The Company, subject to Section 3.2.2, shall comply with the requirements of Rule 430B, and will notify the Representatives promptly, and confirm the notice in writing, (i) when any post-effective amendment to the Registration Statement shall become effective or any amendment or supplement to the Prospectus shall have been filed; (ii) of the receipt of any comments from the Commission; (iii) of any request by the Commission for any amendment to the Registration Statement or any amendment or supplement to the Prospectus, including any document incorporated or deemed to be incorporated by reference therein, or for additional information; (iv) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or any post-effective amendment or of any order preventing or suspending the use of any Preliminary Prospectus or the Prospectus, or of the suspension of the qualification of the Public Securities for offering or sale in any jurisdiction, or of the initiation or threatening of any proceedings for any of such purposes or of any examination pursuant to Section 8(d) or 8(e) of the Securities Act concerning the Registration Statement and (v) if the Company becomes the subject of a proceeding under Section 8A of the Securities Act in connection with the Offering of the Public Securities. The Company shall effect all filings required under Rule 424(b) of the Securities Act Regulations, in the manner and within the time period required by Rule 424(b) (without reliance on Rule 424(b)(8)), and shall take such steps as it deems necessary to ascertain promptly whether the form of prospectus transmitted for filing under Rule 424(b) was received for filing by the Commission and, in the event that it was not, it will promptly file such prospectus. The Company shall use its best efforts to prevent the issuance of any stop order, prevention or suspension and, if any such order is issued, to obtain the lifting thereof at the earliest possible moment.

3.2.2. Continued Compliance. The Company shall comply with the Securities Act, the Securities Act Regulations, the Exchange Act and the Exchange Act Regulations so as to permit the completion of the distribution of the Public Securities as contemplated in this Agreement and in the Registration Statement, the Pricing Disclosure Package and the Prospectus. If at any time when a prospectus relating to the Public Securities is (or, but for the exception afforded by Rule 172 of the Regulations ("Rule 172"), would be) required by the Securities Act to be delivered in connection with sales of the Public Securities, any event shall occur or condition shall exist as a result of which it is necessary, in the opinion of counsel for the Underwriters or for the Company, to (i) amend the Registration Statement in order that the Registration Statement will not include an untrue statement of a

material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading; (ii) amend or supplement the Pricing Disclosure Package or the Prospectus in order that the Pricing Disclosure Package or the Prospectus, as the case may be, will not include any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing at the time it is delivered to a purchaser, not misleading, or (iii) amend the Registration Statement or amend or supplement the Pricing Disclosure Package or the Prospectus, as the case may be, in order to comply with the requirements of the Securities Act or the Regulations, the Company will promptly (A) give the Representatives notice of such event; (B) prepare any amendment or supplement as may be necessary to correct such statement or omission or to make the Registration Statement, the Pricing Disclosure Package or the Prospectus comply with such requirements and, a reasonable amount of time prior to any proposed filing or use, furnish the Representatives with copies of any such amendment or supplement and (C) file with the Commission any such amendment or supplement; provided that the Company shall not file or use any such amendment or supplement to which the Representatives or counsel for the Underwriters shall reasonably object. The Company will furnish to the Underwriters such number of copies of such amendment or supplement as the Underwriters may reasonably request. The Company has given the Representatives notice of any filings made pursuant to the Exchange Act or the Exchange Act Regulations within 48 hours prior to the Applicable Time; the Company will give the Representatives notice of its intention to make any such filing from the Applicable Time to the Closing Date and will furnish the Representatives with copies of any such documents a reasonable amount of time prior to such proposed filing, as the case may be, and will not file or use any such document to which the Representatives or counsel for the Underwriters shall reasonably object.

3.2.3. Filing of Final Prospectus. The Company shall file the Prospectus (in form and substance satisfactory to the Representative) with the Commission pursuant to the requirements of Rule 424 of the Regulations.

3.2.4. Free Writing Prospectuses. The Company agrees that, unless it obtains the prior written consent of the Representatives, it shall not make any offer relating to the Public Securities that would constitute an Issuer Free Writing Prospectus or that would otherwise constitute a “free writing prospectus,” or a portion thereof, required to be filed by the Company with the Commission or retained by the Company under Rule 433; provided that the Representatives shall be deemed to have consented to each Issuer General Use Free Writing Prospectus hereto and any “road show that is a written communication” within the meaning of Rule 433(d)(8)(i) that has been reviewed and approved in advance by the Representatives. The Company represents that it has treated or agrees that it will treat each such free writing prospectus consented to, or deemed consented to, by the Underwriters as an “issuer free writing prospectus,” as defined in Rule 433, and that it has complied and will comply with the applicable requirements of Rule 433 with respect thereto, including timely filing with the Commission where required, legending and record keeping. If at any time following issuance of an Issuer Free Writing Prospectus there occurred or occurs an event or development as a result of which such Issuer Free Writing Prospectus conflicted or would conflict with the information contained in the Registration Statement or included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing at that subsequent time, not misleading, the Company will promptly notify the Underwriters and will promptly amend or supplement, at its own expense, such Issuer Free Writing Prospectus to eliminate or correct such conflict, untrue statement or omission.

3.3 Delivery to the Underwriters of Registration Statements. The Company has delivered or made available or shall deliver or make available to the Representatives and Representatives’ Counsel without charge, signed copies of the Registration Statement as originally filed and each amendment thereto (including exhibits filed therewith or incorporated by reference therein and documents incorporated or deemed to be incorporated by reference therein) and signed copies of all consents and

certificates of experts, and will also deliver to the Underwriters, without charge, a conformed copy of the Registration Statement as originally filed and each amendment thereto (without exhibits) for each of the Underwriters. The copies of the Registration Statement and each amendment thereto furnished to the Underwriters will be identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T.

3.4 Delivery to the Underwriters of Prospectuses. The Company has delivered or made available or will deliver or make available to each Underwriter, without charge, as many copies of each Preliminary Prospectus as such Underwriter reasonably requested, and the Company hereby consents to the use of such copies for purposes permitted by the Securities Act. The Company will furnish to each Underwriter, without charge, during the period when a prospectus relating to the Public Securities is (or, but for the exception afforded by Rule 172 of the Regulations, would be) required to be delivered under the Securities Act, such number of copies of the Prospectus (as amended or supplemented) as such Underwriter may reasonably request. The Prospectus and any amendments or supplements thereto furnished to the Underwriters will be identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T.

3.5 Effectiveness and Events Requiring Notice to the Representatives. The Company shall notify the Representatives immediately and confirm the notice in writing: (i) of the effectiveness of any amendment to the Registration Statement; (ii) of the issuance by the Commission of any stop order or of the initiation, or the threatening, of any proceeding for that purpose; (iii) of the issuance by any state securities commission of any proceedings for the suspension of the qualification of the Public Securities for offering or sale in any jurisdiction or of the initiation, or the threatening, of any proceeding for that purpose; (iv) of the mailing and delivery to the Commission for filing of any amendment or supplement to the Registration Statement or Prospectus; (v) of the receipt of any comments or request for any additional information from the Commission; and (vi) of the happening of any event during the period described in this Section 3.5 that, in the judgment of the Company, makes any statement of a material fact made in the Registration Statement, the Pricing Disclosure Package or the Prospectus untrue or that requires the making of any changes in (a) the Registration Statement in order to make the statements therein not misleading, or (b) in the Pricing Disclosure Package or the Prospectus in order to make the statements therein, in light of the circumstances under which they were made, not misleading. If the Commission or any state securities commission shall enter a stop order or suspend such qualification at any time, the Company shall make every reasonable effort to obtain promptly the lifting of such order.

3.6 Listing. The Company shall use its commercially reasonable efforts to maintain the listing of the shares of Common Stock (including the Public Securities) on the NasdaqCM for at least three years from the date of this Agreement.

3.7 Reports to the Representatives.

3.7.1. Periodic Reports, etc. For a period of three (3) years after the date of this Agreement, the Company shall furnish to the Representatives copies of such financial statements and other periodic and special reports as the Company from time to time furnishes generally to holders of any class of its securities and also promptly furnish to the Representative: (i) a copy of each periodic report the Company shall be required to file with the Commission; (ii) a copy of every press release and every news item and article with respect to the Company or its affairs which was released by the Company and filed or furnished on a Form 8-K; (iii) a copy of each Form 8-K prepared and filed by the Company; (iv) five copies of each registration statement filed by the Company under the Securities Act; and (v) such additional documents and information with respect to the Company and the affairs of any future subsidiaries of the Company as the Representatives may from time to time reasonably request; provided the Representatives shall sign, if requested by the Company, a Regulation FD compliant confidentiality agreement which is reasonably acceptable to the Representatives and Representatives' Counsel in

connection with the Representatives' receipt of such information. Documents filed with the Commission pursuant to its EDGAR system shall be deemed to have been delivered to the Representatives pursuant to this Section 3.7.1.

3.7.2. Earning Statement. The Company will make generally available to its security holders and the Representatives as soon as practicable an earning statement that satisfies the provisions of Section 11(a) of the Securities Act and Rule 158 of the Commission promulgated thereunder covering a period of at least twelve months beginning with the first fiscal quarter of the Company occurring after the "effective date" (as defined in Rule 158) of the Registration Statement.

3.8 Emerging Growth Company. The Company will promptly notify the Representatives if the Company ceases to be an Emerging Growth Company at any time prior to the later of (a) completion of the distribution of the Public Securities within the meaning of the Securities Act and (b) completion of the 90-day restricted period referred to in Section 2.5.2 hereof.

3.9 Payment of Expenses. The Company hereby agrees to pay on each of the Closing Date and the Option Closing Date, if any, to the extent not paid at the Closing Date, all expenses incident to the performance of the obligations of the Company under this Agreement, including, but not limited to: (a) all filing fees and communication expenses relating to the registration of the Public Securities with the Commission; (b) all fees and expenses associated with the review of the Offering by FINRA (including, without limitation, filing fees and the reasonable fees and disbursements of counsel for the Underwriters), provided that in no event will the expenses paid under this subclause (b) exceed \$30,000; (c) all fees and expenses relating to the listing of such Public Securities on the NasdaqCM and on such other stock exchanges as the Company and the Representatives together determine; (d) all fees, expenses and disbursements relating to the registration or qualification of such Public Securities under the "blue sky" securities laws of such states and other jurisdictions as the Representatives may reasonably designate (including, without limitation, all filing and registration fees, and the reasonable fees and disbursements of "blue sky" counsel); (e) all fees, expenses and disbursements relating to the registration, qualification or exemption of such shares under the securities laws of such foreign jurisdictions as the Representatives may reasonably designate; (f) the costs of all mailing and printing of the underwriting documents (including, without limitation, the Underwriting Agreement, any Blue Sky Surveys and, if appropriate, any Agreement Among Underwriters, Selected Dealers' Agreement, Underwriters' Questionnaire and Power of Attorney), registration statements, prospectuses and all amendments, supplements and exhibits thereto and as many preliminary and final Prospectuses as the Representatives may reasonably deem necessary; (g) the costs and expenses of the public relations firm; (h) the costs of preparing, printing and delivering certificates representing the Public Securities; (i) fees and expenses of the transfer agent for the shares of Common Stock; (j) stock transfer and/or stamp taxes, if any, payable upon the transfer of securities from the Company to the Representative; (k) the costs associated with post-Closing advertising the Offering in the national editions of the Wall Street Journal and New York Times; (l) the fees and expenses of the Company's accountants; (m) the fees and expenses of the Company's legal counsel and other agents and representatives; and (n) the Representatives' actual accountable "road show" expenses. The Representatives may deduct from the net proceeds of the Offering payable to the Company on the Closing Date, or the Option Closing Date, if any, the expenses set forth herein to be paid by the Company to the Underwriters.

3.10 Application of Net Proceeds. The Company shall apply the net proceeds from the Offering received by it in a manner consistent with the application thereof described under the caption "Use of Proceeds" in the Pricing Disclosure Package and the Prospectus.

3.11 Stabilization. Neither the Company nor, to its knowledge, any of its employees, directors or stockholders (without the consent of the Representatives) has taken or shall take, directly or indirectly, any action designed to or that has constituted or that might reasonably be expected to cause or result in,

under Regulation M of the Exchange Act, or otherwise, stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Public Securities.

3.12 Internal Controls. The Company shall maintain a system of internal accounting controls sufficient to provide reasonable assurances that: (i) transactions are executed in accordance with management's general or specific authorization; (ii) transactions are recorded as necessary in order to permit preparation of financial statements in accordance with GAAP and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

3.13 FINRA. The Company shall advise the Representatives (who shall make an appropriate filing with FINRA) if it is or becomes aware that (i) any officer or director of the Company, (ii) any beneficial owner of 5% or more of any class of the Company's securities or (iii) any beneficial owner of the Company's unregistered equity securities which were acquired during the 180 days immediately preceding the filing of the Registration Statement is or becomes an affiliate or associated person of a FINRA member participating in the Offering (as determined in accordance with the rules and regulations of FINRA).

3.14 No Fiduciary Duties. The Company acknowledges and agrees that the Underwriters' responsibility to the Company is solely contractual in nature, that the Underwriters are acting solely in the capacity of an arm's length contractual counterparty to the Company with respect to the Offering of the Public Securities contemplated hereby (including in connection with determining the terms of the Offering) and that none of the Underwriters or their affiliates or any selling agent shall be deemed to be acting as a financial advisor or in a fiduciary capacity, or otherwise owes any fiduciary duty to the Company or any of its affiliates in connection with the Offering and the other transactions contemplated by this Agreement. Additionally, neither of the Representatives nor any other Underwriter is advising the Company or any other person as to any legal, tax, investment, accounting or regulatory matters in any jurisdiction. The Company shall consult with its own advisors concerning such matters and shall be responsible for making its own independent investigation and appraisal of the transactions contemplated hereby, and the Underwriters shall have no responsibility or liability to the Company with respect thereto. Any review by the Underwriters of the Company, the transactions contemplated hereby or other matters relating to such transactions will be performed solely for the benefit of the Underwriters and shall not be on behalf of the Company.

3.15 Blue Sky Qualifications. The Company shall use its best efforts, in cooperation with the Underwriters, if necessary, to qualify the Public Securities for offering and sale under the applicable securities laws of such states and other jurisdictions (domestic or foreign) as the Representatives may designate and to maintain such qualifications in effect so long as required to complete the distribution of the Public Securities; provided, however, that the Company shall not be obligated to file any general consent to service of process or to qualify as a foreign corporation or as a dealer in securities in any jurisdiction in which it is not so qualified or to subject itself to taxation in respect of doing business in any jurisdiction in which it is not otherwise so subject.

4. Conditions of Underwriters' Obligations. The obligations of the Underwriters to purchase and pay for the Public Securities, as provided herein, shall be subject to (i) the continuing accuracy of the representations and warranties of the Company as of the date hereof and as of each of the Closing Date and each Option Closing Date, if any; (ii) the accuracy of the statements of officers of the Company made pursuant to the provisions hereof; (iii) the performance by the Company of its obligations hereunder; and (iv) the following conditions:

4.1 Regulatory Matters.

4.1.1. Effectiveness of Registration Statement: Rule 430B Information. The Registration Statement has been declared effective by the Commission under the Securities Act and, at each of the Closing Date and any Option Closing Date, no stop order suspending the effectiveness of the Registration Statement or any post-effective amendment thereto has been issued under the Securities Act, no order preventing or suspending the use of any Preliminary Prospectus or the Prospectus has been issued and no proceedings for any of those purposes have been instituted or are pending or, to the Company's knowledge, contemplated by the Commission. The Company has complied with each request (if any) from the Commission for additional information. The Prospectus containing the Rule 430B Information shall have been filed with the Commission in the manner and within the time frame required by Rule 424(b) (without reliance on Rule 424(b)(8)) or a post-effective amendment providing such information shall have been filed with, and declared effective by, the Commission in accordance with the requirements of Rule 430B.

4.1.2. NasdaqCM Stock Market Clearance. On the Closing Date, the Public Securities shall have been approved for listing on the NasdaqCM.

4.2 Company Counsel Matters.

4.2.1. Closing Date Opinion of Counsel. On the Closing Date, the Representatives shall have received (i) the favorable opinion of Alston & Bird LLP, counsel to the Company, dated the Closing Date and addressed to the Representatives, in the form of Exhibit B attached hereto, and (ii) an opinion and 10b-5 statement of Representatives' Counsel, dated the Closing Date and addressed to the Representatives, with respect to such matters as the Representatives may reasonably request.

4.2.2. Option Closing Date Opinion of Counsel. On each Option Closing Date, if any, the Representatives shall have received (i) the favorable opinion of Alston & Bird LLP, dated such Option Closing Date, addressed to the Representatives and in form and substance reasonably satisfactory to the Representatives, to the same effect as the opinion delivered pursuant Section 4.2.1(i), and (ii) an opinion and 10b-5 statement of Representatives' Counsel, dated such Option Closing Date and addressed to the Representatives, with respect to such matters as the Representatives may reasonably request.

4.2.3. Reliance. In rendering such opinion, such counsel may rely: (i) as to matters involving the application of laws other than the laws of the United States and jurisdictions in which they are admitted, to the extent such counsel deems proper and to the extent specified in such opinion, if at all, upon an opinion or opinions (in form and substance reasonably satisfactory to the Representatives) of other counsel reasonably acceptable to the Representatives, familiar with the applicable laws; and (ii) as to matters of fact, to the extent they deem proper, on certificates or other written statements of officers of the Company and officers of departments of various jurisdictions having custody of documents respecting the corporate existence or good standing of the Company, provided that copies of any such statements or certificates shall be delivered to Representatives' Counsel if requested. The opinion of Alston & Bird LLP and any opinion relied upon by Alston & Bird LLP shall include a statement to the effect that it may be relied upon by Representatives' Counsel in its opinion delivered to the Underwriters.

4.3 Comfort Letters.

4.3.1. Cold Comfort Letter. At the time this Agreement is executed you shall have received a cold comfort letter containing statements and information of the type customarily included in accountants' comfort letters with respect to the financial statements and certain financial information contained or incorporated or deemed incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus, addressed to the Representatives and in form and substance satisfactory in all respects to you and to the Auditor, dated as of the date of this Agreement.

4.3.2. Bring-down Comfort Letter. At each of the Closing Date and each Option Closing Date, if any, the Representatives shall have received from the Auditor a letter, dated as of the Closing Date or such Option Closing Date, as applicable, to the effect that the Auditor reaffirms the statements made in the letter furnished pursuant to Section 4.3.1, except that the specified date referred to shall be a date not more than two (2) business days prior to the Closing Date or such Option Closing Date, as applicable.

4.4 Officers' Certificates.

4.4.1. Officers' Certificate. The Company shall have furnished to the Representatives a certificate, dated the Closing Date and any Option Closing Date (if such date is other than the Closing Date), of its Chairman, President and Chief Executive Officer and its Vice President of Finance and Chief Accounting Officer stating that (i) such officers have carefully examined the Registration Statement, the Pricing Disclosure Package, any Issuer Free Writing Prospectus and the Prospectus and, in their opinion, the Registration Statement and each amendment thereto, as of the Applicable Time and as of the date of this Agreement and as of the Closing Date (or any Option Closing Date if such date is other than the Closing Date) did not include any untrue statement of a material fact and did not omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading, and the Pricing Disclosure Package, as of the Applicable Time and as of the Closing Date (or any Option Closing Date if such date is other than the Closing Date), any Issuer Free Writing Prospectus as of its date and as of the Closing Date (or any Option Closing Date if such date is other than the Closing Date), the Prospectus and each amendment or supplement thereto, as of the respective date thereof and as of the Closing Date, did not include any untrue statement of a material fact and did not omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances in which they were made, not misleading, (ii) since the effective date of the Registration Statement, no event has occurred which should have been set forth in a supplement or amendment to the Registration Statement, the Pricing Disclosure Package or the Prospectus, (iii) to the best of their knowledge after reasonable investigation, as of the Closing Date (or any Option Closing Date if such date is other than the Closing Date), the representations and warranties of the Company in this Agreement are true and correct and the Company has complied with all agreements and satisfied all conditions on its part to be performed or satisfied hereunder at or prior to the Closing Date (or any Option Closing Date if such date is other than the Closing Date), and (iv) there has not been, subsequent to the date of the most recent audited financial statements included or incorporated by reference in the Pricing Disclosure Package, any Material Adverse Change, except as set forth in the Prospectus.

4.4.2. Secretary's Certificate. At each of the Closing Date and the Option Closing Date, if any, the Representatives shall have received a certificate of the Company signed by the Secretary of the Company, dated the Closing Date or the Option Date, as the case may be, respectively, certifying, among other things: (i) that each of the Charter and Bylaws is true and complete, has not been modified and is in full force and effect; (ii) that the resolutions of the Company's Board of Directors and any committee thereof relating to the Offering are in full force and effect and have not been modified; (iii) as to the accuracy and completeness of all correspondence between the Company or its counsel and the Commission; and (iv) as to the incumbency of the officers of the Company. The documents referred to in such certificate shall be attached to such certificate.

4.4.3. Regulatory Certificate. The Representatives shall have received on each of the Closing Date and the Option Closing Date, if any, a certificate addressed to the Representatives dated the Closing Date and any Option Closing Date (if such date is other than the Closing Date), of the Company's regulatory affairs officer, in a form satisfactory to the Representatives, with respect to the regulatory affairs of the Company.

4.5 No Material Changes. Prior to and on each of the Closing Date and each Option Closing Date, if any: (i) there shall have been no Material Adverse Change from the latest dates as of which information is given in the Registration Statement, the Pricing Disclosure Package and the Prospectus; (ii) no action, suit or proceeding, at law or in equity, shall have been pending or threatened against the Company or any Insider before or by any court or federal or state commission, board or other administrative agency wherein an unfavorable decision, ruling or finding may materially adversely affect the business, operations, prospects or financial condition or income of the Company, except as set forth in the Registration Statement, the Pricing Disclosure Package and the Prospectus; (iii) no stop order shall have been issued under the Securities Act and no proceedings therefor shall have been initiated or threatened by the Commission; and (iv) the Registration Statement, the Pricing Disclosure Package and the Prospectus and any amendments or supplements thereto shall contain all material statements which are required to be stated therein in accordance with the Securities Act and the Regulations and shall conform in all material respects to the requirements of the Securities Act and the Regulations, and neither the Registration Statement, the Pricing Disclosure Package nor the Prospectus nor any amendment or supplement thereto shall contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading.

4.6 Delivery of Agreements. On or before the date of this Agreement, the Company shall have delivered to the Representatives executed copies of this Agreement and the Lock-Up Agreements from each of the persons listed in Schedule 3 hereto.

4.7 Additional Documents. At the Closing Date and at each Option Closing Date (if any) Representatives' Counsel shall have been furnished with such documents and opinions as they may require for the purpose of enabling Representatives' Counsel to deliver an opinion to the Underwriters, or in order to evidence the accuracy of any of the representations or warranties, or the fulfillment of any of the conditions, herein contained; and all proceedings taken by the Company in connection with the issuance and sale of the Public Securities as herein contemplated shall be satisfactory in form and substance to the Representatives and Representatives' Counsel.

5. Indemnification.

5.1 Indemnification of the Underwriters.

5.1.1. General. Subject to the conditions set forth below, the Company agrees to indemnify and hold harmless each of the Underwriters, and each dealer selected by the Representatives that participates in the offer and sale of the Public Securities (each a "**Selected Dealer**") and each of their respective directors, officers, employees and affiliates and each person, if any, who controls any such Underwriter ("**Controlling Person**") within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, against any and all loss, liability, claim, damage and expense whatsoever (including but not limited to any and all legal or other expenses reasonably incurred in investigating, preparing or defending against any litigation, commenced or threatened, or any claim whatsoever, whether arising out of any action between any of the Underwriters and the Company or between any of the Underwriters and any third party, or otherwise), joint or several, to which they or any of them may become subject under the Securities Act, the Exchange Act or any other statute or at common law or otherwise or under the laws of foreign countries, arising out of or based upon any untrue statement or alleged untrue statement of a material fact contained in (i) the Registration Statement, the Pricing Disclosure Package, the Preliminary Prospectus, the Prospectus or in any Issuer Free Writing Prospectus (as from time to time each may be amended and supplemented); (ii) any materials or information provided to investors by, or with the approval of, the Company in connection with the marketing of the Offering, including any "road show" or investor presentations made to investors by the Company (whether in person or electronically); or (iii) any application or other document or written communication (in this Section 5, collectively called

“**application**”) executed by the Company or based upon written information furnished by the Company in any jurisdiction in order to qualify the Public Securities under the securities laws thereof or filed with the Commission, any state securities commission or agency, the NASDAQ Stock Market LLC or any national securities exchange; or the omission or alleged omission therefrom of a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading, unless such statement or omission was made in reliance upon, and in conformity with, the Underwriters’ Information. The Company agrees promptly to notify the Representatives of the commencement of any litigation or proceedings against the Company or any of its officers, directors or Controlling Persons in connection with the issuance and sale of the Public Securities or in connection with the Registration Statement, the Pricing Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus.

5.1.2. Procedure. If any action is brought against an Underwriter, a Selected Dealer or a Controlling Person in respect of which indemnity may be sought against the Company pursuant to Section 5.1.1, such Underwriter, such Selected Dealer or Controlling Person, as the case may be, shall promptly notify the Company in writing of the institution of such action (provided that the failure to notify the Company shall not relieve the Company from any liability that it may have pursuant to Section 5.1.1 except to the extent that it has been materially prejudiced (through the forfeiture of substantive rights or defenses) by such failure, and provided that failure to notify the Company shall not relieve the Company from any liability that it may have otherwise than pursuant to Section 5.1.1) and the Company shall assume the defense of such action, including the employment and reasonable fees of counsel (subject to the reasonable approval of such Underwriter, such Selected Dealer or such Controlling Person, as the case may be) and payment of actual expenses. Such Underwriter, such Selected Dealer or Controlling Person shall have the right to employ its or their own counsel in any such case, but the fees and expenses of such counsel shall be at the expense of such Underwriter, such Selected Dealer or Controlling Person unless (i) the employment of such counsel at the expense of the Company shall have been authorized in writing by the Company in connection with the defense of such action, or (ii) the Company shall not have employed counsel to have charge of the defense of such action, (iii) such indemnified party or parties shall have reasonably concluded that there may be defenses available to it or them which are different from or additional to those available to the Company (in which case the Company shall not have the right to direct the defense of such action on behalf of the indemnified party or parties), or (iv) the named parties in any such proceeding (including any impleaded parties) include both the indemnified party or parties and the Company and representation of both parties by the same counsel would be inappropriate due to actual or potential differing interests between them, in any of which events the reasonable fees and expenses of not more than one additional firm of attorneys (in addition to local counsel) selected by the Underwriter, Selected Dealer and/or Controlling Person shall be borne by the Company. Notwithstanding anything to the contrary contained herein, if any Underwriter, Selected Dealer or Controlling Person shall assume the defense of such action as provided above, the Company shall have the right to approve the terms of any settlement of such action, which approval shall not be unreasonably withheld.

5.2 Indemnification of the Company. Each Underwriter, severally and not jointly, agrees to indemnify and hold harmless the Company, its directors, its officers who signed the Registration Statement and persons who control the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act against any and all loss, liability, claim, damage and expense described in the foregoing indemnity from the Company to the several Underwriters, as incurred, but only with respect to untrue statements or omissions, or alleged untrue statements or omissions made in the Registration Statement, any Preliminary Prospectus, the Pricing Disclosure Package or Prospectus or any amendment or supplement thereto or in any application, in reliance upon, and in strict conformity with, the Underwriters’ Information. In case any action shall be brought against the Company or any other person so indemnified based on any Preliminary Prospectus, the Registration Statement, the Pricing Disclosure Package or Prospectus or any amendment or supplement thereto or any application, and in

respect of which indemnity may be sought against any Underwriter, such Underwriter shall have the rights and duties given to the Company, and the Company and each other person so indemnified shall have the rights and duties given to the several Underwriters by the provisions of Section 5.1.2.

5.3 Contribution.

5.3.1. Contribution Rights. If the indemnification provided for in this Section 5 shall for any reason be unavailable to or insufficient to hold harmless an indemnified party under Section 5.1 or 5.2 in respect of any loss, claim, damage or liability, or any action in respect thereof, referred to therein, then each indemnifying party shall, in lieu of indemnifying such indemnified party, contribute to the amount paid or payable by such indemnified party as a result of such loss, claim, damage or liability, or action in respect thereof, (i) in such proportion as shall be appropriate to reflect the relative benefits received by the Company, on the one hand, and the Underwriters, on the other, from the Offering of the Public Securities, or (ii) if the allocation provided by clause (i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the Company, on the one hand, and the Underwriters, on the other, with respect to the statements or omissions that resulted in such loss, claim, damage or liability, or action in respect thereof, as well as any other relevant equitable considerations. The relative benefits received by the Company, on the one hand, and the Underwriters, on the other, with respect to such Offering shall be deemed to be in the same proportion as the total net proceeds from the Offering of the Public Securities purchased under this Agreement (before deducting expenses) received by the Company, as set forth in the table on the cover page of the Prospectus, on the one hand, and the total underwriting discounts and commissions received by the Underwriters with respect to the shares of the Common Stock purchased under this Agreement, as set forth in the table on the cover page of the Prospectus, on the other hand. The relative fault shall be determined by reference to whether the untrue or alleged untrue statement of a material fact or omission or alleged omission to state a material fact relates to information supplied by the Company or the Underwriters, the intent of the parties and their relative knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and the Underwriters agree that it would not be just and equitable if contributions pursuant to this Section 5.3.1 were to be determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation that does not take into account the equitable considerations referred to herein. The amount paid or payable by an indemnified party as a result of the loss, claim, damage or liability, or action in respect thereof, referred to above in this Section 5.3.1 shall be deemed to include, for purposes of this Section 5.3.1, any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim. Notwithstanding the provisions of this Section 5.3.1 in no event shall an Underwriter be required to contribute any amount in excess of the amount by which the total underwriting discounts and commissions received by such Underwriter with respect to the Offering of the Public Securities exceeds the amount of any damages that such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation.

5.3.2. Contribution Procedure. Within fifteen (15) days after receipt by any party to this Agreement (or its representative) of notice of the commencement of any action, suit or proceeding, such party will, if a claim for contribution in respect thereof is to be made against another party (“**contributing party**”), notify the contributing party of the commencement thereof, but the failure to so notify the contributing party will not relieve it from any liability which it may have to any other party other than for contribution hereunder. In case any such action, suit or proceeding is brought against any party, and such party notifies a contributing party or its representatives of the commencement thereof within the aforesaid 15 days, the contributing party will be entitled to participate therein with the notifying party and any other contributing party similarly notified. Any such contributing party shall not

be liable to any party seeking contribution on account of any settlement of any claim, action or proceeding affected by such party seeking contribution on account of any settlement of any claim, action or proceeding affected by such party seeking contribution without the written consent of such contributing party. The contribution provisions contained in this Section 5.3.2 are intended to supersede, to the extent permitted by law, any right to contribution under the Securities Act, the Exchange Act or otherwise available. Each Underwriter's obligations to contribute pursuant to this Section 5.3 are several and not joint.

6. Default by an Underwriter.

6.1 Default Not Exceeding 10% of Firm Shares or Option Shares. If any Underwriter or Underwriters shall default in its or their obligations to purchase the Firm Shares or the Option Shares, if the Option is exercised hereunder, and if the number of the Firm Shares or Option Shares with respect to which such default relates does not exceed in the aggregate 10% of the number of Firm Shares or Option Shares to be purchased on the Closing Date or any Option Closing Date, as applicable, that all Underwriters have agreed to purchase hereunder, then such Firm Shares or Option Shares to which the default relates shall be purchased by the non-defaulting Underwriters in proportion to their respective commitments hereunder.

6.2 Default Exceeding 10% of Firm Shares or Option Shares. In the event that the default addressed in Section 6.1 relates to more than 10% of the Firm Shares or Option Shares to be purchased on the Closing Date or any Option Closing Date, as applicable, you may in your discretion arrange for yourself or for another party or parties to purchase such Firm Shares or Option Shares to which such default relates on the terms contained herein. If, within one (1) Business Day after such default relating to more than 10% of the Firm Shares or Option Shares, you do not arrange for the purchase of such Firm Shares or Option Shares, then the Company shall be entitled to a further period of one (1) Business Day within which to procure another party or parties satisfactory to you to purchase said Firm Shares or Option Shares on such terms. In the event that neither you nor the Company arrange for the purchase of the Firm Shares or Option Shares to which a default relates as provided in this Section 6, this Agreement will automatically be terminated without liability on the part of the Company (except as provided in Sections 3.10 and 5 hereof) or the several Underwriters (except as provided in Section 5 hereof); provided, however, that if such default occurs with respect to the Option Shares, this Agreement will not terminate as to the Firm Shares; and provided, further, that nothing herein shall relieve a defaulting Underwriter of its liability, if any, to the other Underwriters and to the Company for damages occasioned by its default hereunder.

6.3 Postponement of Closing Date. In the event that the Firm Shares or Option Shares to which the default relates are to be purchased by the non-defaulting Underwriters, or are to be purchased by another party or parties as aforesaid, you or the Company shall have the right to postpone the Closing Date or Option Closing Date for a reasonable period, but not in any event exceeding five (5) Business Days, in order to effect whatever changes may thereby be made necessary in the Registration Statement, the Pricing Disclosure Package or the Prospectus or in any other documents and arrangements, and the Company agrees to file promptly any amendment to the Registration Statement, the Pricing Disclosure Package or the Prospectus that in the opinion of counsel for the Underwriter may thereby be made necessary. The term "**Underwriter**" as used in this Agreement shall include any party substituted under this Section 6 with like effect as if it had originally been a party to this Agreement with respect to such shares of Common Stock.

7. Effective Date of this Agreement and Termination Thereof.

7.1 Effective Date. This Agreement shall become effective when both the Company and the Representatives have executed the same and delivered counterparts of such signatures to the other party.

7.2 Termination. The Representatives shall have the right to terminate this Agreement at any time prior to any Closing Date, (i) if any domestic or international event or act or occurrence has materially disrupted, or in the Representatives' opinion will in the immediate future materially disrupt, general securities markets in the United States; or (ii) if trading on the New York Stock Exchange or the NASDAQ Stock Market LLC shall have been suspended or materially limited, or minimum or maximum prices for trading shall have been fixed, or maximum ranges for prices for securities shall have been required by FINRA or by order of the Commission or any other government authority having jurisdiction, or if trading of any securities issued or guaranteed by the Company shall have been suspended on any exchange or in any over-the-counter market; or (iii) if the United States shall have become involved in a new war or an increase in major hostilities; or (iv) if a banking moratorium has been declared by a New York State or federal authority; or (v) if the Company shall have sustained a material loss by fire, flood, accident, hurricane, earthquake, theft, sabotage or other calamity or malicious act which, whether or not such loss shall have been insured, will, in the Representatives' opinion, make it inadvisable to proceed with the delivery of the Firm Shares or Option Shares; or (vi) if the Company is in material breach of any of its representations, warranties or covenants hereunder; or (viii) if the Representatives shall have become aware after the date hereof of such a Material Adverse Change in the conditions or prospects of the Company, or such adverse material change in general market conditions as in the Representatives' judgment would make it impracticable to proceed with the offering, sale and/or delivery of the Public Securities or to enforce contracts made by the Underwriters for the sale of the Public Securities.

7.3 Expenses. Notwithstanding anything to the contrary in this Agreement, in the event that this Agreement shall not be carried out for any reason whatsoever, within the time specified herein or any extensions thereof pursuant to the terms herein, the Company shall be obligated to pay to the Underwriters their actual accountable expenses related to the transactions contemplated herein then due and payable (including the fees and disbursements of Representatives' Counsel and "road show" expenses), and upon demand the Company shall pay the full amount thereof to the Representatives on behalf of the Underwriters.

7.4 Indemnification. Notwithstanding any contrary provision contained in this Agreement, any election hereunder or any termination of this Agreement, and whether or not this Agreement is otherwise carried out, the provisions of Section 5 shall remain in full force and effect and shall not be in any way affected by, such election or termination or failure to carry out the terms of this Agreement or any part hereof.

7.5 Representations, Warranties, Agreements to Survive. All representations, warranties and agreements contained in this Agreement or in certificates of officers of the Company submitted pursuant hereto, shall remain operative and in full force and effect regardless of (i) any investigation made by or on behalf of any Underwriter or its Affiliates or selling agents, any person controlling any Underwriter, its officers or directors or any person controlling the Company or (ii) delivery of and payment for the Public Securities.

8. Miscellaneous.

8.1 Notices. All communications hereunder, except as herein otherwise specifically provided, shall be in writing and shall be mailed (registered or certified mail, return receipt requested), personally delivered or sent by facsimile transmission and confirmed and shall be deemed given when so delivered or faxed and confirmed or if mailed, two (2) days after such mailing.

If to the Representatives:

J.P. Morgan Securities LLC
383 Madison Avenue
New York, New York 10179
Fax: (212) 622-8358
Attention: Equity Syndicate Desk

Cowen and Company, LLC
599 Lexington Avenue
New York, New York 10022
Attention: Head of Equity Capital Markets
Fax: 646-562-1249
with a copy to the General Counsel
Fax: 646-562-1124

with a copy (which shall not constitute notice) to:

Davis Polk & Wardwell LLP
450 Lexington Avenue
New York, New York 10017
Attention: Richard Truesdell; Marcel Fausten
Fax No.: 212-701-5674

If to the Company:

Stemline Therapeutics, Inc.
750 Lexington Avenue, Eleventh Floor
New York, NY 10022
Attention: Ivan Bergstein, Chief Executive Officer
Fax No: 646-389-0968

with a copy (which shall not constitute notice) to:

Alston & Bird LLP
90 Park Avenue
New York, NY 10016
Attention: Matthew W. Mamak
Fax No.: 212-922-3924

8.2 Headings. The headings contained herein are for the sole purpose of convenience of reference, and shall not in any way limit or affect the meaning or interpretation of any of the terms or provisions of this Agreement.

8.3 Amendment. This Agreement may only be amended by a written instrument executed by each of the parties hereto.

8.4 Entire Agreement. This Agreement (together with the other agreements and documents being delivered pursuant to or in connection with this Agreement) constitutes the entire agreement of the parties hereto with respect to the subject matter hereof and thereof, and supersedes all prior agreements and understandings of the parties, oral and written, with respect to the subject matter hereof.

8.5 Binding Effect. This Agreement shall inure solely to the benefit of and shall be binding upon the Representatives, the Underwriters, the Company and the Controlling Persons, directors and officers referred to in Section 5 hereof, and their respective successors, legal representatives and assigns, and no other person shall have or be construed to have any legal or equitable right, remedy or claim under or in respect of or by virtue of this Agreement or any provisions herein contained. The term “successors and assigns” shall not include a purchaser, in its capacity as such, of securities from any of the Underwriters.

8.6 Governing Law; Consent to Jurisdiction; Trial by Jury. This Agreement and any claim, controversy or dispute arising under or related to this Agreement shall be governed by and construed and enforced in accordance with the laws of the State of New York, without giving effect to conflict of laws principles thereof. The Company hereby agrees that any action, proceeding or claim against it arising out of, or relating in any way to this Agreement shall be brought and enforced in the New York Supreme Court, County of New York, or in the United States District Court for the Southern District of New York, and irrevocably submits to such jurisdiction, which jurisdiction shall be exclusive. The Company hereby waives any objection to such exclusive jurisdiction and that such courts represent an inconvenient forum. Any such process or summons to be served upon the Company may be served by transmitting a copy thereof by registered or certified mail, return receipt requested, postage prepaid, addressed to it at the address set forth in Section 8.1 hereof. Such mailing shall be deemed personal service and shall be legal and binding upon the Company in any action, proceeding or claim. The Company agrees that the prevailing party(ies) in any such action shall be entitled to recover from the other party(ies) all of its reasonable attorneys’ fees and expenses relating to such action or proceeding and/or incurred in connection with the preparation therefor. The Company (on its behalf and, to the extent permitted by applicable law, on behalf of its stockholders and affiliates) and each of the Underwriters hereby irrevocably waives, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Agreement or the transactions contemplated hereby.

8.7 Execution in Counterparts. This Agreement may be executed in one or more counterparts, and by the different parties hereto in separate counterparts, each of which shall be deemed to be an original, but all of which taken together shall constitute one and the same agreement, and shall become effective when one or more counterparts has been signed by each of the parties hereto and delivered to each of the other parties hereto. Delivery of a signed counterpart of this Agreement by facsimile or email/pdf transmission shall constitute valid and sufficient delivery thereof.

8.8 Waiver, etc. The failure of any of the parties hereto to at any time enforce any of the provisions of this Agreement shall not be deemed or construed to be a waiver of any such provision, nor to in any way effect the validity of this Agreement or any provision hereof or the right of any of the parties hereto to thereafter enforce each and every provision of this Agreement. No waiver of any breach, non-compliance or non-fulfillment of any of the provisions of this Agreement shall be effective unless set forth in a written instrument executed by the party or parties against whom or which enforcement of such waiver is sought; and no waiver of any such breach, non-compliance or non-fulfillment shall be construed or deemed to be a waiver of any other or subsequent breach, non-compliance or non-fulfillment.

[Signature Page Follows]

If the foregoing correctly sets forth the understanding between the Underwriters and the Company, please so indicate in the space provided below for that purpose, whereupon this letter shall constitute a binding agreement between us.

Very truly yours,

STEMLINE THERAPEUTICS, INC.

By: /s/ Kenneth Hoberman
Name: Kenneth Hoberman
Title: Chief Operating Officer

Confirmed as of the date first written above mentioned, on behalf of itself and as Representatives of the several Underwriters named on Schedule 1 hereto:

J.P. MORGAN SECURITIES LLC

By: /s/ Hank Yeh
Name: Hank Yeh
Title: Vice President, Healthcare Investment Banking

COWEN AND COMPANY, LLC

By: /s/ Jason Fenton
Name: Jason Fenton
Title: Managing Director, ECM

SCHEDULE 1

Underwriter	Total Number of Firm Shares to be Purchased	Number of Additional Shares to be Purchased if the Option is Fully Exercised
J.P. Morgan Securities LLC	1,665,000	249,750
Cowen and Company, LLC	925,000	138,750
Ladenburg Thalmann & Co. Inc.	462,500	69,375
H.C. Wainwright & Co., LLC	222,000	33,300
Roth Capital Partners, LLC	111,000	16,650
Joseph Gunnar & Co. LLC	111,000	16,650
National Securities Corporation	111,000	16,650
Aegis Capital Corp.	92,500	13,875
TOTAL	3,700,000	555,000

SCHEDULE 2-A

Pricing Information

Number of Firm Shares: 3,700,000

Number of Option Shares: 555,000

Public Offering Price per share: \$14.00

SCHEDULE 2-B

Issuer General Use Free Writing Prospectuses

None.

SCHEDULE 3

List of Lock-Up Parties

Ivan Bergstein, M.D.
David G. Gionco
Kenneth Hoberman
Ron Bentsur
Eric L. Dobmeier
Kenneth Zuerblis
Alan Forman

SCHEDULE 4

Warrants to purchase 99,529 shares of the Company's Common Stock issued to Aegis Capital Corp. on January 31, 2013.

Form of Lock-Up Agreement

[], 2018

J.P. Morgan Securities LLC
383 Madison Avenue
New York, New York 10179

Cowen and Company, LLC
599 Lexington Avenue
New York, New York 10022

As Representatives of the several Underwriters

Re: Public Offering of Stemline Therapeutics, Inc.

Ladies and Gentlemen:

The undersigned, a holder of common stock, par value \$0.0001 per share ("Common Stock"), or rights to acquire Common Stock, of Stemline Therapeutics, Inc. (the "Company") understands that you, as Representatives of the several Underwriters, propose to enter into an Underwriting Agreement (the "Underwriting Agreement") with the Company, providing for the public offering (the "Offering") by the several Underwriters named in Schedule I to the Underwriting Agreement (the "Underwriters"), of shares of Common Stock of the Company (the "Securities") pursuant to a registration statement on Form S-3 (Registration No. 333-219794) (the "Registration Statement") filed with the Securities and Exchange Commission (the "SEC"). Capitalized terms used herein and not otherwise defined shall have the meanings set forth in the Underwriting Agreement.

In consideration of the Underwriters' agreement to enter into the Underwriting Agreement and to proceed with the Offering of the Securities, and for other good and valuable consideration receipt of which is hereby acknowledged, the undersigned hereby agrees for the benefit of the Company, you and the other Underwriters that, without the prior written consent of J.P. Morgan Securities LLC on behalf of the Underwriters, the undersigned will not, from the date hereof through the period ending 90 days (the "Lock-Up Period") after the date of the final prospectus relating to the Offering (the "Prospectus"), directly or indirectly: (1) offer, pledge, assign, encumber, announce the intention to sell, sell, contract to sell (including any short sale), sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, any shares of Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock owned either of record or beneficially or may be deemed to be beneficially owned (as defined in the Securities Exchange Act of 1934, as amended, and the rules and regulations of the SEC promulgated thereunder (the "Exchange Act")) by the undersigned on the date hereof or hereafter acquired or

(2) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Common Stock, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of Common Stock or such other securities, in cash or otherwise, or (3) make any demand for or exercise any right with respect to, the registration of any shares of Common Stock or any security convertible into or exercisable or exchangeable for Common Stock, or (4) publicly announce an intention to do any of the foregoing.

The restrictions in the immediately preceding paragraph shall not apply to:

- (a) the sale of the Securities to be sold pursuant to the Underwriting Agreement;
 - (b) transfers of shares of Common Stock or any security convertible into or exercisable or exchangeable for Common Stock (i) as a bona fide gift, or gifts, (ii) to an immediate family member or a trust for the direct or indirect benefit of the undersigned or such immediate family member of the undersigned, or (iii) by will or intestacy;
 - (c) the exercise of options granted under the Company's Amended and Restated 2004 Employee, Director and Consultant Stock Plan, 2012 Incentive Plan and/or 2016 Long-Term Incentive Plan *provided* that the shares of Common Stock delivered upon such exercise are subject to the restrictions set forth in this letter;
 - (d) transfers of shares of Common Stock to the Company (i) as forfeitures to satisfy tax withholding and remittance obligations of the undersigned in connection with the vesting or exercise of equity awards granted pursuant to the Company's Amended and Restated 2004 Employee, Director and Consultant Stock Plan, 2012 Incentive Plan and/or 2016 Long-Term Incentive Plan, or (ii) pursuant to a net exercise or cashless exercise by the stockholder of outstanding equity awards pursuant to the Company's Amended and Restated 2004 Employee, Director and Consultant Stock Plan, 2012 Incentive Plan and/or 2016 Long-Term Incentive Plan; and
 - (e) the establishment of a trading plan that complies with Rule 10b5-1 under the Exchange Act; *provided, however*, that (i) the restrictions shall apply in full force to sales or other dispositions pursuant to such Rule 10b5-1 plan during the Lock-Up Period and (ii) no public announcement or disclosure of entry into such Rule 10b5-1 plan is made or required to be made, including any filing with the SEC under Section 13 or Section 16 of the Exchange Act;
- provided* that in case of any transfer pursuant to clause (b) above, each transferee, donee or distributee shall sign and deliver a lock-up letter substantially in the form of this Lock-Up Agreement, and *provided further* that such transfer shall not involve a disposition for value and such transfer is not reported or required to be reported in any public report or filing with the SEC during the Lock-Up Period.(1)

(1) Lock-up agreements with certain officers contain the following additional provision: In addition, it shall be permissible for the undersigned, without exercising any investment discretion and in accordance with the Company's insider trading policy, to sell through the Company's transfer agent on or about [], shares of Common Stock to satisfy any tax withholding obligation of the undersigned, but only to the extent required with respect to the

In furtherance of the foregoing, the Company, and any duly appointed transfer agent for the registration or transfer of the securities described herein, are hereby authorized to decline to make any transfer of securities if such transfer would constitute a violation or breach of this Lock-Up Agreement. The undersigned hereby represents and warrants that the undersigned has full power and authority to enter into this Lock-Up Agreement. All authority herein conferred or agreed to be conferred and any obligations of the undersigned shall be binding upon the successors, assigns, heirs or personal representatives of the undersigned.

The undersigned understands that if the Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the Common Stock to be sold thereunder, the undersigned shall be released from all obligations under this Lock-Up Agreement.

The undersigned, whether or not participating in the Offering, understands that the Underwriters are entering into the Underwriting Agreement and proceeding with the Offering in reliance upon this Lock-Up Agreement.

vesting of [] shares of Common Stock of the Company which are outstanding as of the date hereof, and on or about [], shares of Common Stock to satisfy any tax obligation of the undersigned, but only to the extent required with respect to the vesting of [] shares of Common Stock of the Company which are outstanding as of the date hereof, and on or about [], shares of Common Stock to satisfy any tax obligation of the undersigned, but only to the extent required with respect to the vesting of [] shares of Common Stock of the Company which are outstanding as of the date hereof and that are each subject to a taxable event upon vesting during the Lock-Up Period, in compliance with Section 16 of the Exchange Act; provided that if the undersigned reports any such transfer on a Form 4 filed with the SEC pursuant to Section 16 of the Exchange Act, the undersigned shall cause such Form 4 to include a statement that such transfer was effected to satisfy the tax withholding obligation of the undersigned in connection with the vesting referred to in this paragraph.

This Lock-Up Agreement and any claim, controversy or dispute arising under or related to this Lock-Up Agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to the conflict of laws principles thereof.

Very truly yours,

Signature: _____

Print Name: _____

Form of Alston & Bird LLP Opinion

[], 2018

J.P. Morgan Securities LLC
383 Madison Avenue
New York, New York 10179

Cowen and Company, LLC
599 Lexington Avenue
New York, New York 10022

As Representatives of the several Underwriters

Re: Stemline Therapeutics, Inc. — Public Offering of Shares of Common Stock

Ladies and Gentlemen:

We have acted as counsel to Stemline Therapeutics, Inc., a Delaware corporation (the “Company”), in connection with the sale by the Company to you, J.P. Morgan Securities LLC and Cowen and Company, LLC, as representatives of the several underwriters named on Schedule 1 to the Underwriting Agreement (the “Representatives”), of [] shares of the Company’s Common Stock, \$0.0001 par value per share (the “Shares”) and [] shares of the Company’s Common Stock issuable upon the exercise of an option granted by the Company to the Underwriters to purchase additional shares. The Company is selling and issuing the Shares to the Underwriters pursuant to the Underwriting Agreement dated [], 2018 (the “Underwriting Agreement”) between the Company and the Representatives. This opinion letter is being furnished to you at the request of the Company pursuant to Section 4.2.1 of the Underwriting Agreement. Capitalized terms used and not otherwise defined herein shall have the meaning assigned to such terms in the Underwriting Agreement.

With regard to the opinions set forth below, we have examined copies of (1) the registration statement on Form S-3 (File No. 333-219794) filed by the Company with the Securities and Exchange Commission (the “Commission”) pursuant to the Securities Act of 1933, as amended (the “Securities Act”), as declared effective by the Commission on August 18, 2017 and as amended on the date of the Underwriting Agreement (including the Incorporated Documents (as defined below) and the information deemed to be part of the Registration Statement as of the time of effectiveness under Rule 430B under the Securities Act) (the “Registration Statement”), (2) the Preliminary Prospectus Supplement filed with the Commission on [], 2018, including the Incorporated Documents (the “Preliminary Prospectus”), (3) the Final Prospectus Supplement dated [], 2018, filed together with the Base Prospectus by the Company with the Commission pursuant to Rule 424(b)(5) under the Securities Act on [], 2018, including the Incorporated Documents (the “Prospectus”), (4) each Issuer General Use Free Writing Prospectus listed on Schedule 2-B to the Underwriting Agreement (the “FWPs”), if any, and (5) the information and all documents incorporated by reference in the foregoing documents or filed as exhibits thereto pursuant to the Securities Exchange Act of 1934, as amended (the “Exchange Act”) (collectively, the “Incorporated Documents”). The Preliminary Prospectus at the Applicable Time (the “Pricing Prospectus”) and the information included on Schedule 2-A of the Underwriting Agreement are referred to herein as the “Pricing Disclosure Package.”

As to certain factual matters relevant to this opinion letter, we have relied upon the representations and warranties made in the Underwriting Agreement by the parties thereto, and originals or copies, certified or otherwise identified to our satisfaction, of such other records, agreements, documents and instruments, including certificates or comparable documents and statements of officers of the Company and of public

officials, as we have deemed appropriate as a basis for the opinions and other statements hereinafter set forth. Except to the extent expressly set forth herein, we have made no independent investigations with regard to matters of fact, and, accordingly, we do not express any opinion or belief as to matters that might have been disclosed by independent verification.

In rendering our opinions in Paragraph 1 below that the Company is in “good standing” under the laws of the State of Delaware (its state of incorporation), and regarding the qualification of the Company to transact business as a foreign corporation in the State of New York, we have relied solely on certificates provided by government agencies of those states. With regard to the statements in Paragraph 13 below, we have relied solely on our review of the list of stop orders contained on the Commission’s website at <http://www.sec.gov/litigation/stoporders.shtml> on [], 2018 and confirmed that no stop order has been issued with regard to the Registration Statement.

Whenever any opinion or confirmation set forth in this opinion letter with respect to the existence or absence of facts is qualified by the words “to our knowledge,” “known to us,” “to our attention” or other words of similar import, such words mean the current awareness by lawyers in the “primary lawyer group” of factual matters that such lawyers recognize as being relevant to the opinion or confirmation so qualified. “Primary lawyer group” means lawyers of this firm who have rendered significant legal services for the Company, after consultation with other lawyers of this firm who have represented the Company on substantive matters. Although nothing has come to our attention that causes us to question the accuracy of the factual information known to us, we have not, except to the extent expressly set forth herein, undertaken any independent review or investigation to determine the existence or absence of such facts, and no inference as to our knowledge of such facts should be drawn from the fact of our representation of the Company.

In rendering the opinions expressed below, we have assumed (i) the genuineness of all signatures, (ii) the legal capacity of natural persons, (iii) the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as certified, conformed, telefacsimile, electronic or photostatic copies and the authenticity of the originals of such documents, (iv) the accuracy, completeness and authenticity of certificates of public officials and (v) the due authorization, execution and delivery of all documents by the parties thereto (except the due authorization, execution and delivery by the Company of the Underwriting Agreement), where authorization, execution and delivery are prerequisites to the effectiveness of such documents.

The opinions expressed in paragraphs 15 through 19 are directed solely to the Company’s product candidates SL-401, SL-701, and SL-801, as such terms are used in the Prospectus, and the patents and patent applications related to SL-401, SL-701, and SL-801 listed on Appendix 1 hereto (the “Patents and Patent Applications”). In addition, with respect to paragraphs 15 through 18, we have also relied upon information provided by lawyers from Goodwin Proctor LLP, special intellectual property counsel to the Company, as we have deemed appropriate.

Our opinions set forth below are limited to the laws of the State of New York, the General Corporation Law of the State of Delaware and the federal laws of the United States, and we do not express any opinion herein concerning any other laws.

Based upon the foregoing and subject to the additional qualifications set forth herein, we are of the opinion that:

1. The Company is a corporation validly existing and in good standing under the laws of the State of Delaware and is duly qualified to do business and is in good standing as a foreign corporation in State of New York.
 2. The Company has the requisite corporate power and authority to own, lease and operate its properties and to conduct its business as described in the Registration Statement, Pricing Disclosure Package and the Prospectus and to enter into and perform its obligations under
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the Underwriting Agreement, including to issue and sell the Shares as contemplated in the Underwriting Agreement.

3. The capital stock of the Company conforms in all material respects to the description thereof contained in the Registration Statement, Pricing Disclosure Package and the Prospectus. The descriptions in the Registration Statement, Preliminary Prospectus and Prospectus under the caption "Description of Common Stock" and "Capitalization," as applicable, and in the Registration Statement in Part II, Item 15, insofar as such statements purport to summarize legal matters, agreements or documents discussed therein, fairly summarize the matters referred to therein in all material respects, subject to the qualifications and assumptions stated therein.
 4. The Shares to be issued and sold by the Company pursuant to the Underwriting Agreement have been duly authorized and, when issued and delivered by the Company in accordance with the terms of the Underwriting Agreement against payment of the consideration set forth on the cover of the Prospectus, will be validly issued, fully paid and nonassessable. The issuance and sale of the Shares by the Company is not subject to any preemptive or other similar rights of any securityholder of the Company arising under the General Corporation Law of the State of Delaware, the Company's Restated Certificate of Incorporation or Amended and Restated Bylaws or any document filed by the Company with the Commission as an exhibit to the Registration Statement.
 5. There are no restrictions upon the voting or transfer of any securities of the Company pursuant to the Company's Restated Certificate of Incorporation or Amended and Restated Bylaws or any document filed by the Company with the Commission as an exhibit to the Registration Statement.
 6. Except as disclosed in the Prospectus or listed on Schedule A to this opinion letter, no contract or agreement filed by the Company with the Commission as an exhibit to the Registration Statement grants any person registration rights or other similar rights to have any securities registered pursuant to the Registration Statement or otherwise registered by the Company under the Securities Act.
 7. The Underwriting Agreement has been duly authorized, executed and delivered by the Company.
 8. The execution, delivery and performance by the Company of the Underwriting Agreement and the consummation of the transactions contemplated by the Underwriting Agreement, including, without limitation, the issuance and sale by the Company of the Shares, will not (i) conflict with or result in a breach or violation of any term or provision of or constitute a default under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company pursuant to any document filed (or incorporated by reference) by the Company with the Commission as an exhibit to the Registration Statement, (ii) result in any violation of the provisions of the Restated Certificate of Incorporation or Amended and Restated Bylaws of the Company or (iii) result in the violation of any existing law or statute or any judgment, order or regulation of any court or arbitrator or governmental or regulatory authority of which we have knowledge except, in the case of clauses (i) and (iii) above, for such conflict, breach, violation or default that would not, individually or in the aggregate, reasonably be expected to cause a Material Adverse Change.
 9. No consent, approval, authorization, license, registration, qualification or order of any court or governmental agency or regulatory body is required for the due authorization, execution, delivery or performance of the Underwriting Agreement by the Company or the consummation of the transactions contemplated by the Underwriting Agreement, including, without limitation, the issuance and sale by the Company of the Shares except such as have
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been obtained under the Securities Act and the Exchange Act, and such as may be required under state securities or blue sky laws or foreign securities laws in connection with the purchase and distribution of the Shares by the Underwriters, and we express no opinion with respect to the Conduct Rules of Financial Industry Regulatory Authority.

10. To our knowledge, except as described in the Registration Statement, the Pricing Disclosure Package, and the Prospectus, no action, suit or proceeding is pending or is threatened in writing against the Company, before any court or before or by any public body or board to which the Company is a party or to which any property of the Company is the subject which, individually or in the aggregate, would reasonably be expected to cause a Material Adverse Change.
 11. The Registration Statement, the Pricing Disclosure Package and the Prospectus (other than the financial statements and related schedules therein and notes thereto, and other financial information derived therefrom, as to which we express no opinion) comply as to form in all material respects with the requirements of the Securities Act and the Regulations.
 12. The Shares have been approved for listing on the NASDAQ Capital Market.
 13. The Registration Statement has been declared effective under the Securities Act, and to our knowledge no stop order suspending the effectiveness of the Registration Statement has been issued and no proceedings for that purpose have been instituted or are threatened, pending or contemplated. Any required filing of the Prospectus and any supplement thereto pursuant to Rule 424(b) under the Securities Act has been made in the manner and within the time period required by such Rule 424(b).
 14. The Company is not and after giving effect to the application of the proceeds received by the Company from the offering and sale of the Shares as described in the Registration Statement, the Pricing Disclosure Package, and the Prospectus, the Company will not be, required to register as an “investment company,” or “controlled” by an entity required to register as an “investment company” within the meaning of the Investment Company Act of 1940, as amended.
 15. The Patents and Patent Applications identified as in-licensed by the Company in Appendix 1 hereto are the subject of license agreements between the patent assignee (“Licensor”) and the Company under the licenses listed in Appendix 2 hereto (“Licenses”). The Company has valid licenses to each of the Patents and Patent Applications in accordance with the terms of the applicable License, assuming the License is a binding obligation of the Licensor.
 16. The public records maintained by the United States Patent and Trademark Office indicate that assignments from the inventor(s) of record for each United States Patent and Patent Application listed in Appendix 1 hereto were executed and recorded, and that each such assignment provides that the inventor(s) assigned their entire right, title and interest in the Patent or Patent Application to the Company or the Licensor, as the case may be, as assignee.
 17. To our knowledge, no action, suit, proceeding or claim is currently pending challenging the validity or enforceability of any claim of the Patents, and other than ongoing examination proceedings of Patent Applications pending before the applicable patent-granting authorities, no other proceeding is pending before any such authority relating to any of the Patents or Patent Applications.
 18. To our knowledge, no action, suit, proceeding, or claim is pending or is threatened in writing against the Company alleging that the Company is infringing or misappropriating
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any patents, trade secrets or other proprietary information of any third party. We have conducted a freedom to operate search for third-party United States patents with respect to SL-401, SL-701, and SL-801. A freedom to operate search is an inherently uncertain process, as it relies not only upon the selection of appropriate and relevant search terms that must be present in a third-party patent in order to identify it, but also the exercise of judgment in evaluating a given third-party patent's strength and scope as it relates to potential infringement, validity, and/or unenforceability of the claims. However, based upon such search, we did not identify any third-party patent that we believe a properly informed court or other tribunal would find to be infringed by the manufacture, use, offer to sell, or sale of SL-401, SL-701, or SL-801 in the United States. Nonetheless, the fact that our search did not result in identifying such third-party United States patent should not be taken as a definitive statement that none exist.

19. To our knowledge, the statements in the Prospectus (or incorporated by reference) under the captions "Intellectual Property and Regulatory Exclusivity," "Risk Factors-Risks Related to Our Intellectual Property Rights," "Business-Overview," "Business-Patents and Proprietary Rights" and "Business-License and Research Agreements" insofar as such statements constitute a summary of documents referred to therein or matters of law, are accurate in all material respects and present fairly the matters described therein. The statements included in the Prospectus (or incorporated by reference) under the caption "Material U.S. Federal Income Tax Consequences to Non-U.S. Holders," insofar as they purport to describe provisions of U.S. federal income tax laws or legal conclusions with respect thereto, in our opinion fairly and accurately summarize the matters referred to therein in all material respects.
20. The Registration Statement, the Preliminary Prospectus and the Prospectus, and any amendment thereof or supplement thereto, comply, and as of their respective effective or issue dates (including, without limitation, the Applicable Time) complied, as to form in all material respects with the requirements of the Securities Act and the Rules and Regulations, and the conditions for use of Form S-3, set forth in the General Instructions thereto, including without limitation, Instruction I.B.1., have been satisfied.
21. We are not aware of any agreement or other document required by the Securities Act and the Regulations to be filed as an exhibit to the Registration Statement that is not so filed.

We have participated in conferences with officers and other representatives of the Company, representatives of the Representatives, representatives of the independent registered public accounting firm of the Company and representatives of special intellectual property counsel for the Company, at which conferences the contents of the Registration Statement, the Pricing Disclosure Package, the Prospectus, and the FWP, if any, listed on Schedule 2-B to the Underwriting Agreement and related matters were discussed and, although we are not passing upon and assume no responsibility for the accuracy, completeness or fairness of the statements contained in the Registration Statement, the Pricing Disclosure Package, the Prospectus, and the FWP, if any (except as specified in the foregoing opinions), no facts have come to our attention to cause us to believe that (i) the Registration Statement on the date of the Underwriting Agreement contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading, or that the Prospectus as amended or supplemented on the date of the Underwriting Agreement contained or as of the date hereof contains any untrue statement of a material fact or omitted to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading, or (ii) the Pricing Disclosure Package, as of the Applicable Time, contained any untrue statement of a material fact or omitted to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading, provided, however, that in respect of clauses (i) and (ii) above, we do not express any belief with respect to the financial statements and related schedules therein and notes thereto, and other financial information derived therefrom, contained in the Registration Statement, the Prospectus or the Pricing Disclosure Package. In

addition, and as specifically pertains to the Patents listed on Appendix 1, nothing has come to our attention that causes us to question the validity of any claim of any such Patent.

The foregoing opinions are as of the date hereof and we make no undertaking to supplement or update such opinions, if after the date hereof, factors or circumstances come to our attention or changes in the law occur which could affect such opinions.

This opinion letter is provided to the Underwriters and the Underwriters' counsel for their use solely in connection with the transactions contemplated by the Underwriting Agreement and may not be used, circulated, quoted or otherwise relied upon for any other purpose without our express written consent. The only opinions rendered by us consist of those matters set forth in Paragraphs 1-21 hereof, and no opinion may be implied or inferred beyond those expressly stated.

By _____

SCHEDULE A

Warrants to purchase 99,529 shares of the Company's Common Stock issued to Aegis Capital Corp. on January 31, 2013.

APPENDIX 1

Company Program	Patent No.	Application No.	PCT Application No.	Jurisdiction	Priority Date	Filing Date	Issue Date	Title	Inventor(s)
SL-401	7,763,242	11/899,747	-	US	9/7/2006	9/7/2007	7/27/2010	Methods for treating myelodysplastic syndrome with a human interleukin-3-diphtheria toxin conjugate	Frankel, Arthur E.
	8,470,307	12/368,048	-	US	9/7/2006	2/9/2009	6/25/2013	Methods for treating acute myeloid leukemia with diphtheria toxin-interleukin-3 conjugates	Frankel, Arthur E.
	9,181,317	13/896,923	-	US	9/7/2006	5/17/2013	11/10/2015	Methods and compositions based on diphtheria toxin-interleukin-3 conjugates	Frankel, Arthur E.
		14/802,398	-	US	9/7/2006	7/17/2015		Methods and compositions based on diphtheria toxin-interleukin-3 conjugates	Frankel, Arthur E.
	2007293047	2007293047	PCT/US2007/019481	Australia	9/7/2006	9/7/2007	4/24/2014	Methods and compositions based on diphtheria toxin-interleukin-3 conjugates	Frankel, Arthur E.
	2014201901	2014201901	-	Australia	9/7/2006	4/2/2014	8/18/2016	Methods and compositions based on diphtheria toxin-interleukin-3 conjugates	Frankel, Arthur E.
		2016201300	-	Australia	9/7/2006	2/29/2016		Methods and compositions based on diphtheria toxin-interleukin-3 conjugates	Frankel, Arthur E.
	2698595	2698595	PCT/US2007/019481	Canada	9/7/2006	9/7/2007		Methods and compositions based on diphtheria toxin-interleukin-3 conjugates	Frankel, Arthur E.
		2,923,381	-	Canada	9/7/2006	9/7/2007 (3/8/2016)		Methods and compositions based on diphtheria toxin-interleukin-3 conjugates	Frankel, Arthur E.
		7837840.3 EP2063907	PCT/US2007/019481	Europe	9/7/2006	9/7/2007		Methods and compositions based on diphtheria toxin-interleukin-3 conjugates	Frankel, Arthur E.
	5550905	2009-527415	PCT/US2007/019481	Japan	9/7/2006	9/7/2007	5/30/2014	Methods and compositions based on diphtheria toxin-interleukin-3 conjugates	Frankel, Arthur E.
	5902223	2014-075847	-	Japan	9/7/2006	4/1/2014	3/18/2016	Methods and compositions based on diphtheria toxin-interleukin-3 conjugates	Frankel, Arthur E.
		2016-045210	-	Japan	9/7/2006	3/9/2016		Methods and compositions based on diphtheria toxin-interleukin-3 conjugates	Frankel, Arthur E.

SL-701	7,297,337	11/233,796	-	US	7/30/2003	9/23/2005	11/20/2007	EphA2 T-cell epitope agonists and uses therefor	Storkus, Walter J.; Kinch, Michael, S.
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Company Program	Patent No.	Application No.	PCT Application No.	Jurisdiction	Priority Date	Filing Date	Issue Date	Title	Inventor(s)
	8,114,407	11/977,179	-	US	7/30/2003	10/22/07	2/14/2012	EphA2 T-cell epitope agonists and uses therefor	Storkus, Walter J.; Kinch, Michael, S.
	8,574,584	13/355,343	-	US	7/30/2003	1/20/12	11/5/2013	EphA2 T-cell epitope agonists and uses therefor	Storkus, Walter J.; Kinch, Michael, S.
	9,359,402	14/069,208	-	US	7/30/2003	10/31/13	6/7/2016	EphA2 T-cell epitope agonists and uses therefor	Storkus, Walter J.; Kinch, Michael, S.
	-	15/173,209	-	US	7/30/2003	6/3/2016	-	EphA2 T-cell epitope agonists and uses therefor	Storkus, Walter J.; Kinch, Michael, S.
	2,533,789	2,533,789	PCT/US2004/023931	Canada	7/30/2003	7/22/2004	9/17/2013	EphA2 T-cell epitope agonists and uses therefor	Storkus, Walter J.; Kinch, Michael, S.
	7,612,162	11/231,618	-	US	9/21/2004	9/21/2005	11/3/2009	Peptide analogs capable of enhancing stimulation of a glioma-specific CTL response	Okada, Hideho; Storkus, Walter J.
	8,859,488	12/561,973	-	US	9/21/2004	9/17/2009	10/14/2014	Peptide analogs capable of enhancing stimulation of a glioma-specific CTL response	Okada, Hideho; Storkus, Walter J.
	-	15/205,203	-	US	9/21/2004	7/8/2016	-	Peptide analogs capable of enhancing stimulation of a glioma-specific CTL response	Okada, Hideho; Storkus, Walter J.
	-	14/724,127	-	US	8/24/2010	-	-	Interleukin-13 receptor alpha 2 peptide-based brain cancer vaccines	Okada, Hideho
	-	2809362	PCT/US2011/048823	Canada	8/24/2010	8/23/2011 (PCT) 2/25/2013 (CA)	-	Interleukin-13 receptor alpha 2 peptide-based brain cancer vaccines	Okada, Hideho
	-	11820530.1 EP2608799	PCT/US2011/048823	Europe	8/24/2010	8/23/2011 (PCT) 3/7/2013 (EP)	-	Interleukin-13 receptor alpha 2 peptide-based brain cancer vaccines	Okada, Hideho
	2011293522	2011293522	PCT/US2011/048823	Australia	8/24/2010	8/23/2011 (PCT) 2/22/2013 (AU)	7/2/2015	Interleukin-13 receptor alpha 2 peptide-based brain cancer vaccines	Okada, Hideho
	-	2013/002207	PCT/US2011/048823	Mexico	8/24/2010	8/23/2011	-	Interleukin-13 receptor alpha 2 peptide-based brain cancer vaccines	Okada, Hideho

Company Program	Patent No.	Application No.	PCT Application No.	Jurisdiction	Priority Date	Filing Date	Issue Date	Title	Inventor(s)
	-	2016-139885	-	Japan	8/24/2010	7/15/2016	-	Interleukin-13 receptor alpha 2 peptide-based brain cancer vaccines	Okada, Hideho
	-	14/386,242	PCT/US2013/032936	US	3/19/2012	3/19/2013 (PCT) 9/18/2014 (U.S.)	-	Methods for treating and monitoring the status of cancer	Cirrito, Thomas P.; Bergstein, Ivan; Brooks, Christopher
	-	2015-501847	PCT/US2013/032936	Japan	3/19/2012	3/19/2013 (PCT) 9/18/2014 (JP)	-	Methods for treating and monitoring the status of cancer	Cirrito, Thomas P.; Bergstein, Ivan; Brooks, Christopher
	-	13763504.1 EP2828664	PCT/US2013/032936	EP	3/19/2012	3/19/2013 (PCT) 9/17/2014 (EP)	-	Methods for treating and monitoring the status of cancer	Cirrito, Thomas P.; Bergstein, Ivan; Brooks, Christopher
	-	2,902,415	PCT/US2013/032936	Canada	3/19/2012	3/19/2013 (PCT) 8/25/15 (CA)	-	Methods for treating and monitoring the status of cancer	Cirrito, Thomas P.; Bergstein, Ivan; Brooks, Christopher
	-	14/401,053	PCT/US2013/041063	US	5/6/2012	5/15/2013 (PCT) 11/13/14 (U.S.)	-	Cancer stem cell targeted cancer vaccines	Cirrito, Thomas P.; Bergstein, Ivan; Brooks, Christopher
	-	13790444.7 EP2849772	PCT/US2013/041063	EP	5/6/2012	5/15/2013 (PCT) 11/14/2014 (EP)	-	Cancer stem cell targeted cancer vaccines	Cirrito, Thomas P.; Bergstein, Ivan; Brooks, Christopher
	-	2015-512776	PCT/US2013/041063	Japan	5/6/2012	5/15/2013 (PCT) 11/14/2014 (JP)	-	Cancer stem cell targeted cancer vaccines	Cirrito, Thomas P.; Bergstein, Ivan; Brooks, Christopher
	-	2,911,191	PCT/US2013/041063	Canada	5/16/2012	5/15/2013 11/2/2015 (CA)	-	Cancer stem cell targeted cancer vaccines	Cirrito, Thomas P.; Bergstein, Ivan; Brooks, Christopher
SL-801	8,084,454	12/082,643	-	US	-	4/11/2008	12/27/2011	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji;

Company Program	Patent No.	Application No.	PCT Application No.	Jurisdiction	Priority Date	Filing Date	Issue Date	Title	Inventor(s)
									Yamamoto, Sayaka; Hasegawa, Yoko
	8,415,357	12/950,297	-	US	-	4/11/2008	4/9/2013	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko
	2008294410	2008294410	PCT/IB2008/003036	Australia	-	4/11/2008	12/20/2012	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko
	-	PI0810911-7	PCT/IB2008/003036	Brazil	-	4/11/2008	-	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko
	2,684,037	2684037	PCT/IB2008/003036	Canada	-	4/11/2008	2/16/2016	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko
	-	2913840	-	Canada	-	4/11/2008	-	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko
	2,152,692	08829410.3 EP2152692	PCT/IB2008/003036	Europe	-	4/11/2008	6/15/2016	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko
	-	16165912.3 EP3088397	-	Europe	-	4/11/2008	-	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko

-	3919/KOLNP/2009 PCT/IB2008/003036 India	-	4/11/2008	-	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji;
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Company Program	Patent No.	Application No.	PCT Application No.	Jurisdiction	Priority Date	Filing Date	Issue Date	Title	Inventor(s)
									Yamamoto, Sayaka; Hasegawa, Yoko
	201380	201380	PCT/IB2008/003036	Israel	-	4/11/2008	4/1/2016	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko
	-	242883	-	Israel	-	12/1/2015	-	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko
	335420	MX/a/2009/011025	PCT/IB2008/003036	Mexico	-	4/11/2008	12/4/2015	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko
	-	MX/a/2015/016591	-	Mexico	-	4/11/2008 (12/2/2015)	-	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko
	580237	580237	PCT/IB2008/003036	New Zealand	-	PCT: 4/11/2008 NZ: 10/7/2009	10/8/2012	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko
	2482111	2009141619	PCT/IB2008/003036	Russia	-	4/11/2008	5/20/2013	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko
	56199	200906750-5	PCT/IB2008/003036	Singapore	-	4/11/2008	4/30/2012	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji; Yamamoto, Sayaka; Hasegawa, Yoko

2009/06960	2009/06960	PCT/IB2008/003036	South Africa	4/11/2008	4/11/2008	10/22/2010	Compounds with anti-cancer activity	Kawabe, Takumi; Ishigaki, Machiyo; Sato, Takuji;
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Company Program	Patent No.	Application No.	PCT Application No.	Jurisdiction	Priority Date	Filing Date	Issue Date	Title	Inventor(s)
	-	2629330	PCT/IB2005/003386	Canada	11/12/2004	11/12/2005 (PCT) 5/9/2008 (CA)	-	Methods and means related to cancer stem cells	Yamamoto, Sayaka; Hasegawa, Yoko Kondo, Toru
	-	15/375,165	-	US	3/22/2007	12/12/2016	-	Urothelial differentiation of urothelial carcinoma: a bladder cancer stem cell model	Berman, David M.; Matsui, William; He, Xiaobing

APPENDIX 2

- Research and License Agreement by and among the Company, Scott and White Memorial Hospital, Scott, Sherwood and Brindley Foundation and Arthur E. Frankel, M.D., dated June 15, 2006; as amended by that certain First Amendment to Research and License Agreement dated December 9, 2008, that certain Second Amendment to Research and License Agreement dated March 17, 2010 and that certain Third Amendment to Research and License Agreement dated July 12, 2011.
 - Exclusive License Agreement between the Company and the University of Pittsburgh, dated September 30, 2009; as amended by that certain First Amendment to License Agreement, dated April 16, 2013.
 - Non-Exclusive License Agreement between the Company and the University of Pittsburgh, dated March 30, 2012; as amended by that certain First Amendment to License Agreement, dated April 16, 2013.
 - Exclusive License Agreement between the Company and CanBas Co., Ltd., dated December 26, 2014.
-

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January 24, 2018

Stemline Therapeutics, Inc.
750 Lexington Avenue, 11th Floor
New York, New York 10022

Re: Stemline Therapeutics, Inc. — Public Offering of Shares of Common Stock

Ladies and Gentlemen:

We are acting as counsel to Stemline Therapeutics, Inc., a Delaware corporation (the “*Company*”) in connection with the registration statement on Form S-3 (File No. 333-219794) filed by the Company with the Securities and Exchange Commission (the “*Commission*”) pursuant to the Securities Act of 1933, as amended (the “*Securities Act*”), on August 8, 2017 (the “*Registration Statement*”) and declared effective by the Commission on August 18, 2017, and the issuance and sale in the aggregate of 4,255,000 shares of common stock, par value \$0.0001 per share, of the Company (the “*Shares*”), which includes 555,000 Shares issuable upon the exercise of an option to purchase additional shares granted by the Company to the Underwriters. The Company is selling the Shares to J.P. Morgan Securities LLC (the “*Underwriter*”) pursuant to the Underwriting Agreement dated January 23, 2018 (the “*Underwriting Agreement*”) between the Company and the Underwriter. This opinion is being furnished to you at your request in accordance with the requirements of Item 16 of the Commission’s Form S-3 and Item 601(b)(5) of Regulation S-K promulgated under the Securities Act.

We have examined the Amended and Restated Certificate of Incorporation of the Company, the Restated Bylaws of the Company, records of proceedings of the Board of Directors, or committees thereof, and records of proceedings of the stockholders, deemed by us to be relevant to this opinion letter, and the Registration Statement. We also have made such further legal and factual examinations and investigations as we deemed necessary for purposes of expressing the opinion set forth herein. In rendering such opinion, we have relied as to factual matters upon the representations, warranties and other statements made in the Underwriting Agreement.

As to certain factual matters relevant to this opinion letter, we have relied conclusively upon originals or copies, certified or otherwise identified to our satisfaction,

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of such records, agreements, documents and instruments, including certificates or other comparable documents of officers of the Company and of public officials, as we have deemed appropriate as a basis for the opinion hereinafter set forth. Except to the extent expressly set forth herein, we have made no independent investigations with regard to matters of fact, and, accordingly, we do not express any opinion as to matters that might have been disclosed by independent verification.

Based upon the foregoing and subject to the limitations, qualifications, exceptions and assumptions set forth herein, we are of the opinion that the Shares have been duly authorized by all necessary corporate action of the Company and are validly issued, fully paid and nonassessable.

Our opinion set forth herein is limited to the General Corporation Law of the State of Delaware, the laws of the State of New York, and the federal law of the United States, and we do not express any opinion herein concerning any other laws.

This opinion letter is provided to the Company for its use solely in connection with the transactions contemplated by the Underwriting Agreement and may not be used, circulated, quoted or otherwise relied upon for any other purpose without our express written consent. The only opinion rendered by us consists of that set forth in the fourth paragraph of this letter, and no opinion may be implied or inferred beyond the opinion expressly stated. Our opinion expressed herein is as of the date hereof, and we undertake no obligation to advise you of any changes in applicable law or any other matters that may come to our attention after the date hereof that may affect our opinion expressed herein.

We consent to the filing of this opinion letter as an exhibit to a Current Report on Form 8-K to be incorporated by reference into the Registration Statement and to the use of our name under the heading "Legal Matters" in the prospectus supplement dated January 23, 2018 filed together with the prospectus dated August 18, 2017 by the Company with the Commission pursuant to Rule 424(b)(5) under the Securities Act on August 8, 2017. In giving such consent, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act, or the rules and regulations of the Commission thereunder.

Very truly yours,

ALSTON & BIRD LLP

By: /s/ Matthew W. Mamak

Matthew W. Mamak

Partner