

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 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 30, 2020**

Catabasis Pharmaceuticals, Inc.

(Exact Name of Registrant as Specified in Charter)

Delaware
(State or Other Jurisdiction
of Incorporation)

001-37467
(Commission
File Number)

26-3687168
(IRS Employer
Identification No.)

**100 High Street
28th Floor
Boston, Massachusetts**
(Address of Principal Executive Offices)

02110
(Zip Code)

Registrant's telephone number, including area code: **(617) 349-1971**

(Former Name or Former Address, if Changed Since Last Report)

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 (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, \$0.001 par value per share	CATB	The Nasdaq Stock Market LLC

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 30, 2020, Catabasis Pharmaceuticals, Inc., a Delaware corporation (the “Company”), entered into an Underwriting Agreement (the “Underwriting Agreement”) with Oppenheimer & Co. Inc. (the “Underwriter”) relating to an underwritten offering (the “Offering”) of 4,600,000 shares (the “Firm Shares”) of the Company’s common stock, \$0.001 par value per share (“Common Stock”). The public offering price of the Firm Shares was \$5.00 per share, and the Underwriter has agreed to purchase the Firm Shares from the Company pursuant to the Underwriting Agreement at a price of \$4.70 per share. Under the terms of the Underwriting Agreement, the Company has granted the Underwriter an option, exercisable for 30 days, to purchase up to an additional 690,000 shares of Common Stock (the “Option Shares” and, together with the Firm Shares, the “Shares”) at the public offering price less the underwriting discount.

The closing of the sale of the Firm Shares is expected to take place on February 3, 2020, subject to the satisfaction of customary closing conditions. The Company estimates that the net proceeds from the sale of the Firm Shares will be approximately \$21.3 million after deducting the underwriting discount and estimated offering expenses payable by the Company. If the Underwriter exercises its option to purchase the Option Shares, the Company estimates that the net proceeds from the sale of the Offering will be approximately \$24.5 million after deducting the underwriting discount and estimated offering expenses payable by the Company. The Company intends to use the net proceeds from the Offering for clinical trial and other research and development activities; initial commercialization preparations; and for working capital and other general corporate purposes.

The Shares are being offered and sold pursuant to the Company’s shelf registration statement on Form S-3 (File No. 333-231441), which became effective on May 23, 2019.

The Underwriting Agreement contains customary representations, warranties and covenants by the Company, customary conditions to closing, indemnification obligations of the Company and the Underwriter, including for liabilities under the Securities Act of 1933, as amended, other obligations of the parties and termination provisions. The representations, warranties and covenants contained in the Underwriting Agreement were made only for purposes of such agreement and as of specific dates, were solely for the benefit of the parties to such agreement and may be subject to limitations agreed upon by the contracting parties.

Subject to certain exceptions, the Company and its officers and directors have agreed not to offer, sell, pledge or otherwise dispose of shares of Common Stock and other of the Company’s securities that they beneficially own, including securities that are convertible into shares of Common Stock and securities that are exchangeable or exercisable for shares of Common Stock for 90 days after January 30, 2020, without the prior written consent of the Underwriter.

The foregoing description of the material terms of the Underwriting Agreement is not complete and is qualified in its entirety by reference to the full text thereof, a copy of which is filed herewith as Exhibit 1.1 to this Current Report on Form 8-K and is incorporated herein by reference.

The legal opinion of Wilmer Cutler Pickering Hale and Dorr LLP, counsel to the Company, relating to the securities offered is filed as Exhibit 5.1 to this Current Report on Form 8-K.

Item 8.01 Other Events.

The Company issued a press release on January 30, 2020 announcing the pricing of the Offering. The full text of the press release issued in connection with this announcement is filed as Exhibit 99.1 to this Current Report on Form 8-K, and the information contained therein is incorporated herein by reference.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

Exhibit Number	Description
1.1	Underwriting Agreement, dated January 30, 2020, by and between the Company and Oppenheimer & Co. Inc.
5.1	Opinion of Wilmer Cutler Pickering Hale and Dorr LLP.
23.1	Consent of Wilmer Cutler Pickering Hale and Dorr LLP (included in Exhibit 5.1).
99.1	Press Release issued January 30, 2020.

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.

CATABASIS PHARMACEUTICALS, INC.

Date: January 30, 2020

By: /s/ Jill C. Milne

Jill C. Milne,
President and Chief Executive Officer

4,600,000 Shares of Common Stock
CATABASIS PHARMACEUTICALS, INC.
UNDERWRITING AGREEMENT

January 30, 2020

Oppenheimer & Co. Inc.
85 Broad Street
New York, New York 10004

Ladies and Gentlemen:

Catabasis Pharmaceuticals, Inc., a Delaware corporation (the "Company"), proposes, subject to the terms and conditions stated herein, to issue and sell to Oppenheimer & Co. Inc., as sole underwriter (the "Underwriter"), an aggregate of 4,600,000 authorized but unissued shares (the "Firm Shares") of Common Stock, par value \$0.001 per share, of the Company (the "Common Stock"). In addition, the Company proposes to grant to the Underwriter an option to purchase up to an additional 690,000 shares (the "Option Shares") of Common Stock from the Company for the purpose of covering over-allotments in connection with the sale of the Firm Shares. The Firm Shares and the Option Shares are collectively called "Shares."

The Company and the Underwriter hereby confirm their agreement as follows:

1. Registration Statement and Prospectus.

The Company has prepared and filed with the Securities and Exchange Commission (the "Commission") a registration statement on Form S-3 (File No. 333-231441) under the Securities Act of 1933, as amended (the "Securities Act"), and the rules and regulations (the "Rules and Regulations") of the Commission thereunder relating to the Shares and such amendments to such registration statement (including post effective amendments) as may have been required to the date of this Agreement. Such registration statement, as amended (including any post effective amendments), has been declared effective by the Commission. The registration statement, together with the amendments prior to the date of this Agreement, including the information (if any) deemed to be a part of, or incorporated by reference into, the registration statement at the time of effectiveness pursuant to Rule 430B under the Securities Act, or at such time as the case may be, is hereinafter referred to as the "Registration Statement" and the related prospectus, dated May 23, 2019, included in the Registration Statement at the time the Registration Statement first became effective is hereinafter called the "Base Prospectus". If the Company has filed or files an abbreviated registration statement pursuant to Rule 462(b) under the Securities Act (the "Rule 462 Registration Statement"), then any reference herein to the term Registration Statement shall include such Rule 462 Registration Statement.

The Company is filing with the Commission pursuant to Rule 424 under the Securities Act a final prospectus supplement to the Base Prospectus relating to the Shares. The final prospectus supplement as filed, along with the Base Prospectus, is hereinafter called the "Prospectus." The term "Preliminary Prospectus" means the Base Prospectus, together with any preliminary prospectus supplement used or filed with the Commission pursuant to Rule 424 of the Rules and Regulations, in the form provided to the Underwriter by the Company for use in connection with the offering of the Shares and prior to the execution and delivery of this Agreement. Reference made herein to the Base Prospectus, any Preliminary Prospectus or to the Prospectus shall be deemed to refer to and include any documents incorporated by reference therein and any reference to any amendment or supplement to the Base Prospectus, any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include any document filed under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the rules and regulations of the Commissions thereunder, incorporated by reference in such Base Prospectus, any Preliminary Prospectus or the Prospectus, as the case may be. The term "Effective Date" shall mean each date that the Registration Statement and any post-effective amendment or amendments thereto became or become effective.

The Commission has not notified the Company of any objection to the use of form of Registration Statement or any post-effective amendment thereto.

2. ***Representations and Warranties of the Company Regarding the Offering.***

(a) The Company represents and warrants to, and agrees with, the Underwriter, as of the date hereof and as of the Closing Date (as defined in Section 4(b) below), except as otherwise indicated, as follows:

(i) At each time of effectiveness, as of the date hereof and at the Closing Date, the Registration Statement and any post-effective amendment thereto complied or will comply in all material respects with the requirements of the Securities Act and the Rules and Regulations and did not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Time of Sale Disclosure Package (as defined in Section 2(a)(iii)(A)(1) below) as of the date hereof and at the Closing Date, and the Prospectus, as amended or supplemented, as of its date, at the time of filing pursuant to Rule 424(b) under the Securities Act and at the Closing Date, did not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading. The representations and warranties set forth in the two immediately preceding sentences shall not apply to statements in or omissions from the Registration Statement, the Time of Sale Disclosure Package or the Prospectus in reliance upon, and in conformity with, written information furnished to the Company by the Underwriter specifically for use in the preparation thereof, which written information is described in Section 7(f). The Registration Statement contains all exhibits and schedules required to be filed by the Securities Act or the Rules and Regulations. No stop order preventing or suspending the effectiveness or use of the Registration Statement, any Preliminary Prospectus or the Prospectus is in effect and no proceedings for such purpose have been instituted or are pending, or, to the knowledge of the Company, are contemplated or threatened by the Commission.

(ii) The Company has not distributed any prospectus or other offering material in connection with the offering and sale of the Shares other than the Time of Sale Disclosure Package and the roadshow or investor presentations delivered to and approved by the Underwriter in connection with the marketing of the offering of the Shares (the "Marketing Materials"). The documents incorporated by reference in the Registration Statement, the Time of Sale Disclosure Package, any Preliminary Prospectus 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 and the respective rules thereunder, as applicable, were filed on a timely basis with the Commission and none of such documents, when they were filed (or, if amendments to such documents were filed, when such amendments were filed), contained an untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading. Any further documents so filed and incorporated by reference in the Registration Statement, the Time of Sale Disclosure Package, any Preliminary Prospectus or the Prospectus, when such documents are filed with the Commission, will conform in all material respects to the requirements of the Exchange Act, and will not contain an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(iii) (A) The Company has provided to the Underwriter a copy of each Issuer Free Writing Prospectus (as defined below) used in the sale of the Shares, if any. The Company has filed all Issuer Free Writing Prospectuses required to be so filed with the Commission, and no stop order preventing or suspending the effectiveness or use of any Issuer Free Writing Prospectus is in effect and no proceedings for such purpose have been instituted or are pending, or, to the knowledge of the Company, are contemplated or threatened by the Commission. When taken together with the rest of the Time of Sale Disclosure Package or the Prospectus, no Issuer Free Writing Prospectus, as of its date of first use and at the Closing Date, has, does or will include (1) any untrue statement of a material fact or omission of any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading, or (2) information that conflicted, conflicts or will conflict with the information contained in the Registration Statement or the Prospectus. The representations and warranties set forth in the immediately preceding sentence shall not apply to statements in or omissions from the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus in reliance upon, and in conformity with, written information furnished to the Company by the Underwriter specifically for use in the preparation thereof. As used in this paragraph and elsewhere in this Agreement:

(1) "Time of Sale Disclosure Package" means the Base Prospectus, each Issuer Free Writing Prospectus, the most recent Preliminary Prospectus that is distributed to investors prior to the time of effectiveness and any description of the transaction provided by the Underwriter included in Schedule I.

(2) “Issuer Free Writing Prospectus” means any “issuer free writing prospectus,” as defined in Rule 433 under the Securities Act, relating to the Shares that (A) is required to be filed with the Commission by the Company, or (B) is exempt from filing pursuant to Rule 433(d)(5)(i) or (d)(8) under the Securities Act, 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) under the Securities Act. For the avoidance of doubt, the term “Issuer Free Writing Prospectus” shall not include any “free writing prospectus” (as defined in Rule 405 under the Securities Act) that was prepared by the Underwriter or provided to any person by the Underwriter without the knowledge and consent of the Company.

(B) At the time of filing of the Registration Statement and at the date hereof, the Company was not and is not an “ineligible issuer,” as defined in Rule 405 under the Securities Act or an “excluded issuer” as defined in Rule 164 under the Securities Act.

(C) Each Issuer Free Writing Prospectus satisfied, as of its issue date and at all subsequent times through the Prospectus Delivery Period (defined below), all other conditions as may be applicable to its use as set forth in Rules 164 and 433 under the Securities Act, including any legend, record-keeping or other requirements.

(iv) The financial statements of the Company, together with the related notes, included or incorporated by reference in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus comply in all material respects with the applicable requirements of the Securities Act and the Exchange Act and fairly present the financial condition of the Company as of the dates indicated and the results of operations and changes in cash flows for the periods therein specified in conformity with United States generally accepted accounting principles (“GAAP”) consistently applied throughout the periods involved; and the supporting schedules included in or incorporated by reference into the Registration Statement present fairly the information required to be stated therein. The pro forma and pro forma as adjusted financial information, if any, included in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus has been properly compiled and prepared in all material respects in accordance with the applicable requirements of the Securities Act and the Rules and Regulations and includes all adjustments necessary to present fairly in accordance with GAAP the pro forma and as adjusted financial position of the respective entity or entities presented therein at the respective dates indicated and their cash flows and the results of operations for the respective periods specified. The assumptions used in preparing the pro forma and pro forma as adjusted financial information included in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus provide a reasonable basis for presenting the significant effects directly attributable to the transactions or events described therein. The related pro forma and pro forma as adjusted adjustments give appropriate effect to those assumptions; and the pro forma and pro forma as adjusted financial information reflect the proper application of those adjustments to the corresponding historical financial statement amounts. No other financial statements, pro forma financial information or schedules are required under the Securities Act and the Rules and Regulations to be included or incorporated by reference in the Registration Statement, the Time of Sale Disclosure Package or the Prospectus. To the Company’s knowledge, Ernst & Young, LLP, which has expressed its opinion with respect to the audited financial statements and schedules filed as a part of the Registration Statement and included in or incorporated by reference into the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, is an independent public accounting firm with respect to the Company within the meaning of the Securities Act and the Rules and Regulations.

(v) The Company had a reasonable basis for, and made in good faith, each “forward-looking statement” (within the meaning of Section 27A of the Securities Act or Section 21E of the Exchange Act) contained in or incorporated by reference into the Registration Statement, the Time of Sale Disclosure Package, the Prospectus or the Marketing Materials.

(vi) All statistical or market-related data included in or incorporated by reference into the Registration Statement, the Time of Sale Disclosure Package or the Prospectus, or included in the Marketing Materials, are based on or derived from sources that the Company reasonably believes to be reliable and accurate, and the Company has obtained the written consent for the use of such data from such sources, to the extent required.

(vii) The Common Stock is registered pursuant to Section 12(b) of the Exchange Act and is listed or approved for listing on the Nasdaq Global Market (“Nasdaq”). Except as disclosed in the Registration Statement or Time of Sale Disclosure Package, there is no action pending by the Company or, to the Company’s knowledge, no action pending by Nasdaq to delist the Common Stock from Nasdaq, nor has the Company received any notification that Nasdaq is contemplating terminating such listing. As of the Closing Date, the Shares will have been authorized for listing, subject to official notice of issuance, on Nasdaq. The Company has no securities that are rated by any “nationally recognized statistical organization” as that term is defined by the Commission for purposes of Rule 436(g)(2) under the Securities Act.

(viii) Neither the Company nor any of its officers, directors or controlled affiliates has taken or will take, directly or indirectly, any action that is designed or intended to or that has constituted or that would reasonably be expected to cause or result in the unlawful stabilization or manipulation of the price of any security of the Company.

(ix) No material relationship, direct or indirect, exists between or among the Company on the one hand, and the directors, officers, stockholders (or analogous interest holders), customers or suppliers of the Company or any of its affiliates on the other hand, which is required to be described in the Time of Sale Disclosure Package and the Prospectus and which is not so described.

(x) The Registration Statement (and any further documents to be filed with the Commission in connection with the offering) contains all exhibits and schedules as required by the Securities Act. Each of the Registration Statement and any post-effective amendment thereto, if any, at the time it became effective, complied in all material respects with the Securities Act and the applicable rules and regulations under the Securities Act and did not and, as amended or supplemented, if applicable, will not, contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Prospectus complies in all material respects with the Securities Act and the applicable rules and regulations, and does not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, misleading. The SEC Reports (as defined below), when they respectively were filed with the Commission, conformed in all material respects to the requirements of the Securities Act and the Exchange Act, as applicable, and the applicable rules and regulations, and none of such documents, when they respectively were filed with the Commission, contained any untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein (with respect to the SEC Reports incorporated by reference in the Prospectus), 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 Prospectus when such documents are filed with the Commission, will conform in all material respects to the requirements of the Exchange Act and the applicable rules and regulations, as applicable, and will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made not misleading. As of the date hereof and through the Closing Date, no post-effective amendment to the Registration Statement reflecting any facts or events arising after the date thereof which represent, individually or in the aggregate, a fundamental change in the information set forth therein is required to be filed with the Commission. There are no documents required to be filed with the Commission in connection with the transaction contemplated hereby that (x) have not been filed as required pursuant to the Securities Act or (y) will not be filed within the requisite time period. There are no contracts or other documents required to be described in the Prospectus, or to be filed as exhibits or schedules to the Registration Statement, which have not been described or filed as required.

(xi) The Company has not, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause this offering of the Shares to be integrated with prior offerings by the Company for purposes of any applicable shareholder approval provisions of any trading market on which any of the securities of the Company are listed or designated.

(b) Any certificate that is signed by any officer of the Company and delivered to the Underwriter or its counsel shall be deemed a representation and warranty by the Company to the Underwriter as to the matters covered thereby.

3. Representations and Warranties of the Company Regarding the Company.

(a) The Company represents and warrants to and agrees with, the Underwriter, except as set forth in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, as of the date hereof and as of the Closing Date, as follows:

(i) The Company has been duly organized and validly exists as a corporation in good standing under the laws of the State of Delaware, and each of the Company's subsidiaries has been duly organized and validly exists as a corporation or other entity in good standing under the laws of its jurisdiction of incorporation. Each of the Company and its subsidiaries has the corporate power and authority to own its properties and conduct its business as currently being carried on and as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, and is duly qualified to do business as a foreign corporation or other entity in good standing in each jurisdiction in which it owns or leases real property or in which the conduct of its business makes such qualification necessary and in which the failure to so qualify would have or is reasonably likely to result in a material adverse effect upon the business, prospects, properties, assets, operations, condition (financial or otherwise) or results of operations of the Company and its subsidiaries, taken as a whole, or in its ability to perform its obligations under this Agreement ("Material Adverse Effect").

(ii) The Company has the power and authority to enter into this Agreement and to authorize, issue and sell the Shares as contemplated by this Agreement. This Agreement has been duly authorized, executed and delivered by the Company, and constitutes a valid, legal and binding obligation of the Company, enforceable against the Company in accordance with its terms, except as rights to indemnity hereunder may be limited by federal or state securities laws and except as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting the rights of creditors generally and subject to general principles of equity.

(iii) The Shares have been duly authorized for issuance and sale and, when issued and paid for, will be validly issued, fully paid and non-assessable.

(iv) The execution, delivery and performance of this Agreement by the Company and the consummation by the Company of the transactions contemplated herein and therein will not (A) result in a breach or violation of any of the terms and provisions of, or constitute a default under, any law, order, rule or regulation to which the Company or any subsidiary is subject, or by which any property or asset of the Company or any subsidiary is bound or affected, (B) conflict with, result in any violation or breach of, or constitute a default (or an event that with notice or lapse of time or both would become a default) under, or give to others any right of termination, amendment, acceleration or cancellation (with or without notice, lapse of time or both) of, any agreement, lease, credit facility, debt, note, bond, mortgage, indenture or other instrument (the "Contracts") or obligation or other understanding to which the Company or any subsidiary is a party or by which any property or asset of the Company or any subsidiary is bound or affected, or (C) result in a breach or violation of any of the terms and provisions of, or constitute a default under, the Company's certificate of incorporation or by-laws, except in the case of clauses (A) and (B), to the extent not reasonably likely to have a Material Adverse Effect.

(v) Neither the Company nor any of its subsidiaries is in violation, breach or default under its certificate of incorporation, by-laws or other equivalent organizational or governing documents, each as amended and currently in effect, except where the violation, breach or default in the case of a subsidiary of the Company is not reasonably likely to result in a Material Adverse Effect.

(vi) Neither the Company, its subsidiaries nor, to its knowledge, any other party is in violation, breach or default of any Contract that is reasonably likely to result in a Material Adverse Effect.

(vii) All consents, approvals, orders, authorizations and filings required on the part of the Company and its subsidiaries in connection with the execution, delivery or performance of this Agreement, and the transactions herein contemplated, have been obtained or made, other than (A) any such consents, approvals, orders, authorizations and required filings that will be obtained or made after the date of this Agreement under the Securities Act, the Exchange Act, the Rules and Regulations and applicable state and foreign securities laws and the rules of FINRA in connection with the offer and sale of the Shares, and (B) such consents, approvals, orders, authorizations and required filings, the failure of which to make or obtain is not reasonably likely to result in a Material Adverse Effect.

(viii) The Company is subject to and in compliance in all material respects with the reporting requirements of Section 13 or Section 15(d) of the Exchange Act, and has timely filed all reports required to be filed pursuant to Sections 13(a), 13(e), 14 and 15(d) of the Exchange Act during the preceding twelve (12) months (the "SEC Reports").

(ix) The Company has an authorized capitalization as set forth in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus. All of the issued and outstanding shares of capital stock of the Company are duly authorized and validly issued, fully paid and nonassessable, and have been issued in compliance with all applicable securities laws, and conform in all material respects to the description thereof in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus. The Shares, when issued and paid for as provided herein, will be duly authorized and validly issued, fully paid and nonassessable, will be issued in compliance with all applicable securities laws, and, except as otherwise stated in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus, the issuance of such Shares is not subject to any preemptive or similar rights. The Shares, when issued, will conform in all material respects to the descriptions thereof set forth in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus.

(x) Except as set forth in the Time of Sale Disclosure Package, the Registration Statement or the Prospectus, no person or entity has the right to require registration of shares of Common Stock or other securities of the Company or any of its subsidiaries because of the filing or effectiveness of the Registration Statement, except for persons and entities who have expressly waived such right in writing or who have been given timely and proper written notice and have failed to exercise such right within the time or times required under the terms and conditions of such right. Except as set forth in the Time of Sale Disclosure Package, the Registration Statement or the Prospectus, there are no persons with registration rights or similar rights to have any securities registered by the Company or any of its subsidiaries under the Securities Act.

(xi) The exercise price of each option issued under the Company's stock option or other employee benefit plans has been no less than the fair market value of a share of common stock as determined on the date of grant of such option. All grants of options were validly issued and properly approved by the board of directors of the Company (or pursuant to duly delegated authority therefrom) in material compliance with all applicable laws and regulations and recorded in the Company's financial statements in accordance with GAAP and, to the Company's knowledge, no such grants involved "back dating," "forward dating" or similar practice with respect to the effective date of grant.

(xii) The financial statements of the Company included in the SEC Reports comply in all material respects with applicable accounting requirements and the rules and regulations of the Commission with respect thereto as in effect at the time of filing. Such financial statements have been prepared in accordance with GAAP applied on a consistent basis during the periods involved, except as may be otherwise specified in such financial statements or the notes thereto and except that unaudited financial statements may not contain all footnotes required by GAAP, and fairly present in all material respects the financial position of the Company and its consolidated subsidiaries as of and for the dates thereof and the results of operations and cash flows for the periods then ended, subject, in the case of unaudited statements, to normal, immaterial, year-end audit adjustments.

(xiii) Since the date of the latest audited financial statements included within the SEC Reports, except as specifically disclosed in a subsequent SEC Report filed prior to the date hereof, (i) there has been no event, occurrence or development that has had or is reasonably likely to result in a Material Adverse Effect, (ii) the Company has not incurred any liabilities (contingent or otherwise) other than (A) trade payables and accrued expenses incurred in the ordinary course of business consistent with past practice and (B) liabilities not required to be reflected in the Company's financial statements pursuant to GAAP or disclosed in filings made with the Commission, (iii) the Company has not altered its method of accounting, (iv) the Company has not declared or made any dividend or distribution of cash or other property to its stockholders or purchased, redeemed or made any agreements to purchase or redeem any shares of its capital stock, (v) the Company has not issued any equity securities to any officer, director or affiliate, except pursuant to Company equity incentive plans or the Company's employee stock purchase plan described in the Time of Sale Disclosure Package, the Registration Statement or the Prospectus (collectively, the "Equity Plans"), (vi) no executive officer or director of the Company has resigned from any position with the Company, which resignation was required to be disclosed in the SEC Reports and (vii) there has not been any change in the capital stock of the Company or any of its subsidiaries (other than changes resulting from exercises, issuances, repurchases, expirations, terminations or forfeitures (A) of outstanding warrants in accordance with their terms or (B) with respect to awards outstanding under the Equity Plans in accordance with their terms or any new grants of awards under the Equity Plans in the ordinary course of business or as otherwise described in the Time of Sale Disclosure Package, the Registration Statement or the Prospectus). The Company does not have pending before the Commission any request for confidential treatment of information. Except for the issuance of the Shares contemplated by this Agreement, no event, liability, fact, circumstance, occurrence or development has occurred or exists or is reasonably expected to occur or exist with respect to the Company or its subsidiaries or their respective businesses, prospects, properties, operations, assets or financial condition that would be required to be disclosed by the Company under applicable securities laws at the time this representation is made or deemed made that has not been publicly disclosed at least one trading day prior to the date that this representation is made.

(xiv) Except as otherwise stated in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus, there are no preemptive rights or other rights to subscribe for or to purchase, or any restriction upon the voting or transfer of, any shares of Common Stock pursuant to the Company's certificate of incorporation, by-laws or any agreement or other instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound.

(xv) Except as otherwise stated in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus, the Company does not own, directly or indirectly, any capital stock or other ownership interest in any partnership, corporation, business trust, limited liability company, limited liability partnership, joint stock company, trust, unincorporated association, joint venture or other entity.

(xvi) Each of the Company and its subsidiaries has filed all foreign, federal, state and local 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 and 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 or such respective subsidiary, except, in all cases, for any such amounts that the Company or any subsidiary is contesting in good faith and except in any case in which the failure to so file or pay would not reasonably be expected to have a Material Adverse Effect. 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. Except as disclosed in writing to the Underwriter, (i) 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 or its subsidiaries, and (ii) no waivers of statutes of limitation with respect to the returns or collection of taxes have been given by or requested from the Company or its subsidiaries, in either case to the extent material to the Company and its subsidiaries taken as a whole. Neither the Company nor its subsidiaries has engaged in any transaction which is a corporate tax shelter or which would reasonably be expected to be characterized as such by the Internal Revenue Service or any other taxing authority to which the Company or such subsidiary reports or by which it is governed. 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.

(xvii) The Company maintains a system of internal control over financial reporting (as such term is defined in Rule 13a-15 of the General Rules and Regulations under the Exchange Act (the “Exchange Act Rules”)) that, except as disclosed in the Company’s SEC Reports, complies in all material respects with the requirements of the Exchange Act and has been designed by the Company’s principal executive officer and principal financial officer, or under their supervision, to provide reasonable assurances 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 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. Except as described in the Time of Sale Disclosure Package, the Registration Statement or the Prospectus, the Company’s internal control over financial reporting was effective as of the end of the Company’s most recent audited fiscal year. Except as described in the Time of Sale Disclosure Package, the Registration Statement or the Prospectus, since the end of the Company’s most recent audited fiscal year, there has been (A) no material weakness in the Company’s internal control over financial reporting (whether or not remediated) and (B) no change in the Company’s internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company’s internal control over financial reporting. The Company maintains disclosure controls and procedures (as such is defined in Rule 13a-15 of the Exchange Act Rules) that comply in all material respects with the requirements of the Exchange Act; such disclosure controls and procedures have been reasonably designed to ensure that information required to be disclosed by the Company and its subsidiaries is accumulated and communicated to the Company’s management, including the Company’s principal executive officer and principal financial officer by others within those entities, and such disclosure controls and procedures are effective.

(xviii) Since the respective dates as of which information is given in the Time of Sale Disclosure Package, the Registration Statement or the Prospectus, (a) neither the Company nor any of its subsidiaries has incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions other than in the ordinary course of business, and (b) there has not been any material change in the Company’s long-term or short-term debt. Except as described in the Time of Sale Disclosure Package, the Registration Statement or the Prospectus, there is not pending or, to the knowledge of the Company, threatened, any action, suit or proceeding to which the Company or any of its subsidiaries is a party or of which any property or assets of the Company or any of its subsidiaries is the subject before or by any court or governmental agency, authority or body, or any arbitrator or mediator, which is reasonably likely to result in a Material Adverse Effect.

(xix) The Company and each of its subsidiaries holds, and is in compliance with, all franchises, grants, authorizations, licenses, permits, easements, consents, certificates and orders (“Permits”) of any governmental or self-regulatory agency, authority or body required for the conduct of its business, and all such Permits are in full force and effect, in each case except where the failure to hold, or comply with, any of them is not reasonably likely to result in a Material Adverse Effect. All such Permits are free and clear of any material restriction or condition that are in addition to, or materially different from, those normally applicable to similar licenses, certificates, authorizations and permits. The Company has not received notification of any material revocation, modification, suspension, termination or invalidation (or proceedings related thereto) of any such Permit.

(xx) The Company and its subsidiaries have good and marketable title to all property (whether real or personal, and other than intellectual property which is subject to clause (xxi) below) described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus as being owned by them that are material to the business of the Company, in each case free and clear of all liens, claims, security interests, other encumbrances or defects, except those that are not reasonably likely to result in a Material Adverse Effect. To the Company’s knowledge, the property held under lease by the Company and its subsidiaries is held by them under valid, subsisting and enforceable leases with only such exceptions with respect to any particular lease as do not interfere in any material respect with the conduct of the business of the Company and its subsidiaries.

(xxi) The Company and each of its subsidiaries owns or possesses or has valid right to use all patents, patent applications, trademarks, service marks, trade names, trademark registrations, service mark registrations, copyrights, licenses, inventions, trade secrets and similar rights (collectively, “Intellectual Property Rights”) necessary for the conduct of the business of the Company and its subsidiaries as currently carried on and as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, except where the failure to own, possess or have such right is not reasonably likely to result in a Material Adverse Effect. There is no pending or, to the Company’s knowledge, threatened action, suit, proceeding or claim by others that the Company or any of its subsidiaries infringes, misappropriates or otherwise violates, or would, upon the commercialization of any product or service described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus infringe, misappropriate or otherwise violate any patent, trademark, copyright, trade secret or other proprietary rights of others, and, except as would not reasonably be expected to result in a Material Adverse Effect, the Company is not aware of any factual basis for any such action, suit, proceeding or claim.

(xxii) The Company and each of its subsidiaries has complied with, is not in violation of, and has not received any notice of violation relating to any law, rule or regulation relating to the conduct of its business, or the ownership or operation of its property and assets, including, without limitation, (A) any laws, rules or regulations related to health, safety or the environment, including those relating to the regulation of hazardous or toxic substances or waste and protection of health and safety or the environment which are applicable to its business (“Environmental Laws”), (B) the Sarbanes-Oxley Act and the rules and regulations of the Commission thereunder, (C) the Foreign Corrupt Practices Act of 1977 and the rules and regulations thereunder, (D) the Employment Retirement Income Security Act of 1974 and the rules and regulations thereunder, and (E) the Currency and Foreign Transactions Reporting Act of 1970, as amended, and the money laundering statutes of all applicable jurisdictions and the rules and regulations thereunder, in each case except where the failure to be in compliance is not reasonably likely to result in a Material Adverse Effect.

(xxiii) The operations of the Company and its subsidiaries are and have been conducted at all times in compliance in all material respects with all applicable financial recordkeeping and reporting requirements and the money laundering statutes and the rules and regulations thereunder, including but not limited to the Bank Secrecy Act, as amended by the USA PATRIOT Act, and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the “Money Laundering Laws”) and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Money Laundering Laws is pending or, to the best knowledge of the Company, threatened.

(xxiv) Neither the Company nor any of its subsidiaries nor, to the knowledge of the Company, any director, officer, employee, representative, agent or affiliate of the Company or any of its subsidiaries is, or is 50% or more owned or otherwise controlled by a person (a “Sanctioned Person”) that is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department (“OFAC”) or located, organized or resident in a country or territory that is, or whose government is, the subject of Sanctions that broadly prohibit dealings with that country or territory (collectively, “Sanctioned Countries” and each, a “Sanctioned Country”); and the Company will not directly or indirectly use the proceeds of the offering of the Shares contemplated hereby, or lend, contribute or otherwise make available such proceeds to any person or entity, for the purpose of financing the activities of any person currently subject to any U.S. sanctions administered by OFAC.

(xxv) Except as has been disclosed to the Underwriter or as is not material to the analysis under any Sanctions, neither the Company nor any of its subsidiaries has engaged in any dealings or transactions with or for the benefit of a Sanctioned Person, or with or in a Sanctioned Country, in the preceding five years, nor does the Company or any of its subsidiaries have any plans to increase its dealings or transactions with Sanctioned Persons, or with or in Sanctioned Countries.

(xxvi) Neither the Company nor, to the Company’s knowledge, any employee or agent of the Company, has (i) used any corporate funds for unlawful contributions, gifts, entertainment or other unlawful expenses relating to political activity, (ii) made any unlawful payment to foreign or domestic government officials or employees or to foreign or domestic political parties or campaigns from corporate funds, (iii) violated any provision of the Foreign Corrupt Practices Act of 1977, as amended, or (iv) made any other unlawful payment.

(xxvii) There are no transactions, arrangements or other relationships between and/or among the Company, any of its affiliates (as such term is defined in Rule 405 of the Rules and Regulations) and any unconsolidated entity, including, but not limited to, any structured finance, special purpose or limited purpose entity that would reasonably be expected to materially affect the Company's liquidity or the availability of or requirements for its capital resources required to be described in the Time of Sale Disclosure Package and the Prospectus which have not been described as required.

(xxviii) There are no outstanding loans, advances (except normal advances for business expenses in the ordinary course of business) or guarantees of indebtedness by the Company to or for the benefit of any of the officers or directors of the Company or any of their respective family members, except as disclosed in the Registration Statement or the Time of Sale Disclosure Package and the Prospectus. All transactions by the Company with office holders or control persons of the Company have been duly approved by the board of directors of the Company, or duly appointed committees or officers thereof, if and to the extent required under U.S. law.

(xxix) The Company and each of its subsidiaries carries, or is covered by, insurance covering the Company's or any of its subsidiaries' respective businesses, assets, employees, officers and directors in such amounts and covering such risks as, in the Company's reasonable judgment, is adequate for the conduct of its business and the value of its properties and as is customary for similarly sized companies engaged in similar businesses in similar industries. The Company has no reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not have a Material Adverse Effect. All policies of insurance owned by the Company are, to the Company's knowledge, in full force and effect and the Company is in compliance with the terms of such policies. There are no material claims by the Company or any of its subsidiaries under any such policy as to which any insurer is denying liability or defending under a reservation of rights clause. The Company has not received written notice from any insurer, agent of such insurer or the broker of the Company that any material capital improvements or any other material expenditures (other than premium payments) are required or necessary to be made in order to continue such insurance. The Company does not insure risk of loss through any captive insurance, risk retention group, reciprocal group or by means of any fund or pool of assets specifically set aside for contingent liabilities other than as described in the Time of Sale Disclosure Package.

(xxx) Except as would not reasonably be expected, singularly or in the aggregate, to have a Material Adverse Effect, there is (A) no significant unfair labor practice complaint pending against the Company, nor to the knowledge of the Company, threatened against it, before the National Labor Relations Board, any state or local labor relation board or any foreign labor relations board applicable to or with jurisdiction over the Company, and no significant grievance or significant arbitration proceeding arising out of or under any collective bargaining agreement is so pending against the Company, or, to the knowledge of the Company, threatened against it and (B) no labor disturbance by the employees of the Company that exists or, to the Company's knowledge, is imminent, and the Company is not aware of any existing or imminent labor disturbance by the employees of any of its principal suppliers, manufacturers, customers or contractors. The Company is not aware that any key employee or significant group of employees of the Company plans to terminate employment with the Company.

(xxxi) No “prohibited transaction” (as defined in Section 406 of the Employee Retirement Income Security Act of 1974, as amended, including the regulations and published interpretations thereunder (“ERISA”), or Section 4975 of the Internal Revenue Code of 1986, as amended from time to time (the “Code”)) or “accumulated funding deficiency” (as defined in Section 302 of ERISA) or any of the events set forth in Section 4043(b) of ERISA (other than events with respect to which the thirty (30)-day notice requirement under Section 4043 of ERISA has been waived) has occurred or would reasonably be expected to occur with respect to any employee benefit plan of the Company which would, singularly or in the aggregate, have a Material Adverse Effect. Each employee benefit plan of the Company is in compliance in all material respects with applicable law, including ERISA and the Code. The Company has not incurred any material liability under Title IV of ERISA with respect to the termination of, or withdrawal from, any pension plan (as defined in ERISA). Each pension plan for which the Company would have any liability that is intended to be qualified under Section 401(a) of the Code is so qualified, and nothing has occurred, whether by action or by failure to act, which would reasonably be expected to, singularly or in the aggregate, cause the loss of such qualification.

(xxxii) No supplier, customer, distributor or sales agent of the Company has notified the Company that it intends to discontinue or decrease the rate of business done with the Company, except where such decrease is not reasonably likely to result in a Material Adverse Effect.

(xxxiii) The Company and its board of directors have taken all necessary action, if any, in order to render inapplicable any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or other similar anti-takeover provision under the Company’s certificate of incorporation (or similar charter documents) or the laws of its state of incorporation that is or would reasonably be expected to become applicable as a result of the Underwriter and the Company fulfilling their obligations or exercising their rights under this Agreement.

(xxxiv) The Company is not, and, after giving effect to the offering and sale of the Shares and the application of the net proceeds thereof, will not be an “investment company,” as such term is defined in the Investment Company Act of 1940, as amended.

(xxxv) The Company has no knowledge of any facts or circumstances which lead it to believe that it will file for reorganization or liquidation under the bankruptcy or reorganization laws of any jurisdiction within one year from the Closing Date. The SEC Reports set forth as of the date hereof all outstanding secured and unsecured indebtedness of the Company or any subsidiary, or for which the Company or any subsidiary has material commitments.

(xxxvi) Except as described in the Time of Sale Disclosure Package and the Prospectus, the Company and its subsidiaries: (A) are and at all times have been in compliance with all statutes, rules, and regulations applicable to Company and its subsidiaries related to the ownership, testing, development, manufacture, packaging, processing, use, distribution, marketing, labeling, promotion, sale, offer for sale, storage, import, export or disposal of any product manufactured or distributed by the Company (“Applicable Laws”), except as would not, individually or in the aggregate, reasonably be expected to result in a Material Adverse Effect; (B) have not received any U.S. Food and Drug Administration (“FDA”) Form 483, notice of adverse finding, warning letter, untitled letter or other correspondence or notice from any governmental authority alleging or asserting noncompliance with any Applicable Laws or any licenses, certificates, approvals, clearances, authorizations, permits and supplements or amendments thereto required by any such Applicable Laws (“Authorizations”); (C) possess all material Authorizations and such Authorizations are valid and in full force and effect and are not in material violation of any term of any such Authorizations; (D) have not received notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any governmental authority or third party alleging that any product operation or activity is in violation of any Applicable Laws or Authorizations and have no knowledge that any such governmental authority or third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding; (E) have 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 the Company has no knowledge that any such governmental authority is considering such action; (F) have not, either voluntarily or involuntarily, initiated, conducted, or issued or caused to be initiated, conducted or issued, any recall, market withdrawal or replacement, safety alert, post-sale warning, “dear doctor” letter, or other notice or action relating to the alleged lack of safety, efficacy or regulatory compliance of any product or any alleged product defect or violation and, to the Company’s knowledge, no third party has initiated or conducted any such notice or action and there are no facts which are reasonably likely to cause, and the Company has not received any written notice from the FDA or any other regulatory agency regarding, a material recall, market withdrawal or replacement of any Company product sold or intended to be sold by the Company, a material change in the marketing classification or a material adverse change in the labeling of any such Company products, or a termination or suspension of the manufacturing, marketing, or distribution of such Company products; and (G) have 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 in all material respects on the date filed (or were corrected or supplemented by a subsequent submission).

(xxxvii) The studies, tests and preclinical and clinical investigations conducted by or on behalf of the Company and its subsidiaries were and, if still pending, are, in all material respects, being conducted in accordance with established protocols, procedures and controls pursuant to accepted professional scientific standards and all Applicable Laws and Authorizations, including, without limitation, the Federal Food, Drug, and Cosmetic Act and implementing regulations including good laboratory practice (“GLP”) regulations (21 C.F.R. Part 58) if any such studies, tests or preclinical and clinical investigations are being conducted pursuant to GLP, and good clinical practice and IND requirements (21 C.F.R. Parts 50, 54, 56, and 312) if any such studies, tests or preclinical and clinical investigations were or are subject to good clinical practice regulations or were or are being conducted under an IND; the descriptions of the results of such studies, tests and trials contained in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus are accurate in all material respects and fairly present the data derived from such studies, tests and trials; except to the extent disclosed in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, the Company is not aware of any studies, tests or trials the results of which the Company believes reasonably call into question the study, test, or trial results described or referred to in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus when viewed in the context in which such results are described and the clinical state of development; and neither the Company nor any of its subsidiaries have received any notices or correspondence from any governmental authority requiring the termination, suspension or material modification of any studies, tests or preclinical or clinical investigations conducted by or on behalf of the Company or any of its subsidiaries.

(xxxviii) Except as described in the Time of Sale Disclosure Package, the Registration Statement or the Prospectus, there are no claims, payments, issuances, arrangements or understandings for services in the nature of a finder's, consulting or origination fee with respect to the introduction of the Company to the Underwriter or the sale of the Shares hereunder or any other arrangements, agreements, understandings, payments or issuances with respect to the Company that may affect the Underwriter's compensation, as determined by FINRA.

(xxxix) Except as set forth in or incorporated by reference into the Registration Statement, the Time of Sale 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, investing fee or otherwise, in consideration of such person raising capital for the Company or introducing to the Company persons who provided capital to the Company, (ii) any FINRA member, or (iii) to the Company's knowledge, any person or entity that has any direct or indirect affiliation or association with any FINRA member, in each case within the 12-month period prior to the date on which the initial Preliminary Prospectus was filed with the Commission ("Filing Date") or thereafter.

(xl) None of the net proceeds of the offering will be paid by the Company to any participating FINRA member or any affiliate or associate of any participating FINRA member, except as specifically authorized herein.

(xli) Except as set forth in or incorporated by reference into the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, no (i) officer or director of the Company or its subsidiaries, (ii) to the Company's knowledge, owner of 5% or more of the Company's unregistered securities or that of its subsidiaries or (iii) to the Company's knowledge, owner of any amount of the Company's unregistered securities acquired within the 180-day period prior to the Filing Date, has any direct or indirect affiliation or association with any FINRA member. The Company will advise the Underwriter and its counsel if it becomes aware that any officer, director or stockholder of the Company or its subsidiaries is or becomes an affiliate or associated person of a FINRA member participating in the offering.

(xlii) The Company has not entered into any arrangements, nor has the Company granted any rights, pursuant to which anyone other than the Underwriter has the right to act as an underwriter or, except as disclosed to the Underwriter, as a financial advisor to the Company in connection with the transactions contemplated hereby.

(xliii) The Company is not a party to any contract, agreement or understanding with any person that would give rise to a valid claim against the Company or the Underwriter for a brokerage commission, finder's fee or like payment in connection with the offering and sale of the Shares or any transaction contemplated by this Agreement, the Registration Statement, the Time of Sale Disclosure Package or the Prospectus.

(xliv) All of the information provided to the Underwriter or to its counsel by the Company, its officers and directors in connection with letters, filings or other supplemental information provided to FINRA pursuant to NASD Conduct rule 2710 or 2720 is true, correct and complete in all material respects.

(xlv) Except as set forth in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus and as preapproved in accordance with the requirements set forth in Section 10A of the Exchange Act, Ernst & Young, LLP has not been engaged by the Company to perform any "prohibited activities" (as defined in Section 10A of the Exchange Act).

(xlvi) Except as set forth in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, there are no material off-balance sheet arrangements (as defined in Item 303 of Regulation S-K) that have or are reasonably likely to have a material current or future effect on the Company's financial condition, revenues or expenses, changes in financial condition, results of operations, liquidity, capital expenditures or capital resources.

(xlvii) Since July 14, 2016 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"). "Testing-the-Waters Communication" means any oral or written communication with potential investors undertaken in reliance on Section 5(d) of the Securities Act.

(xlviii) The Company (a) has not alone engaged in any Testing-the-Waters Communication other than Testing-the-Waters Communications with the consent of the Underwriter with entities that are qualified institutional buyers within the meaning of Rule 144A under the Securities Act or institutions that are accredited investors within the meaning of Rule 501 under the Securities Act, and (b) has not authorized anyone other than the Underwriter to engage in Testing-the-Waters Communications. The Company reconfirms that the Underwriter has been authorized to act on its behalf in undertaking Testing-the-Waters Communications. The Company has not distributed any Written Testing-the-Waters Communications (as defined herein) other than those listed on Schedule II hereto. "Written Testing-the-Waters Communication" means any Testing-the-Waters Communication that is a written communication within the meaning of Rule 405 under the Securities Act.

4. Purchase, Sale and Delivery of Shares.

(a) On the basis of the representations, warranties and agreements herein contained, but subject to the terms and conditions herein set forth, the Company agrees to issue and sell the Firm Shares to the Underwriter, and the Underwriter agrees to purchase the Firm Shares from the Company, at a purchase price of \$4.70 per share (the "Purchase Price").

(b) The Company hereby grants to the Underwriter an option to purchase all or any part of the Option Shares at the Purchase Price.. Such option may be exercised only to cover over-allotments in the sales of the Firm Shares by the Underwriter and may be exercised in whole or in part at any time on or before 12:00 noon, New York City time, on the business day before the Firm Shares Closing Date (as defined below), and from time to time thereafter within 30 days after the date of this Agreement, in each case upon written, facsimile or telegraphic notice, or verbal or telephonic notice confirmed by written, facsimile or telegraphic notice, by the Underwriter to the Company no later than 12:00 noon, New York City time, on the business day before the Firm Shares Closing Date or at least two business days before the Option Shares Closing Date (as defined below), as the case may be, setting forth the number of Option Shares to be purchased and the time and date (if other than the Firm Shares Closing Date) of such purchase.

(c) Payment of the purchase price for the Firm Shares shall be made by wire transfer of immediately available funds or by certified or official bank check or checks payable in New York Clearing House (same day) funds drawn to the order of the Company against delivery of the Firm Shares to the Underwriter through the facilities of the Depository Trust Company ("DTC"), at 10:00 a.m., New York City time, on the second business day following the date of this Agreement or at such time on such other date, not later than ten (10) business days after the date of this Agreement, as shall be agreed upon by the Company and the Underwriter (such time and date of delivery and payment are called the "Firm Shares Closing Date"). In addition, in the event that any or all of the Option Shares are purchased by the Underwriter, payment of the purchase price for such Option Shares and delivery of such Option Shares shall be made in the above-mentioned manner, or in such other manner as shall be agreed upon by the Underwriter and the Company, on each date of delivery as specified in the notice from the Underwriter to the Company (such time and date of delivery and payment are called the "Option Shares Closing Date"). The Firm Shares Closing Date and any Option Shares Closing Date are called, individually, a "Closing Date" and, together, the "Closing Dates."

5. **Covenants.**

(a) The Company covenants and agrees with the Underwriter as follows:

(i) During the period beginning on the date hereof and ending on the earlier of (i) such date as determined by the Underwriter that the Prospectus is no longer required by law to be delivered in connection with sales by an underwriter or dealer or (ii) the completion of the distribution of the Shares by the Underwriter (the "Prospectus Delivery Period"), prior to amending or supplementing the Registration Statement, including any Rule 462 Registration Statement, the Time of Sale Disclosure Package or the Prospectus, the Company shall furnish to the Underwriter for review and comment a copy of each such proposed amendment or supplement, and the Company shall not file any such proposed amendment or supplement to which the Underwriter reasonably objects.

(ii) From the date of this Agreement until the end of the Prospectus Delivery Period, the Company shall promptly advise the Underwriter in writing (A) of the receipt of any comments of, or requests for additional or supplemental information from, the Commission, (B) of the time and date of any filing of any post-effective amendment to the Registration Statement or any amendment or supplement to the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus, (C) of the time and date that any post-effective amendment to the Registration Statement becomes effective and (D) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or of any order preventing or suspending its use or the use of the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus, or of any proceedings to remove, suspend or terminate from listing or quotation the Common Stock from any securities exchange upon which it is listed for trading or included or designated for quotation, or of the threatening or initiation of any proceedings for any of such purposes. If the Commission shall enter any such stop order at any time during the Prospectus Delivery Period, the Company will use its reasonable efforts to obtain the lifting of such order at the earliest possible moment. Additionally, the Company agrees during the Prospectus Delivery Period that it shall comply with the provisions of Rules 424(b) and 430B, as applicable, under the Securities Act and will use its reasonable efforts to confirm that any filings made by the Company under Rule 424(b) or Rule 433 were received in a timely manner by the Commission (without reliance on Rules 424(b)(8) or 164(b) under the Securities Act).

(iii) (A) During the Prospectus Delivery Period, the Company will comply with all requirements imposed upon it by the Securities Act, as now and hereafter amended, and by the Rules and Regulations, as from time to time in force, and by the Exchange Act, as now and hereafter amended, so far as necessary to permit the continuance of sales of or dealings in the Shares as contemplated by the provisions hereof, the Time of Sale Disclosure Package, the Registration Statement and the Prospectus. If during the Prospectus Delivery Period any event occurs as the result of which would cause the Prospectus (or if the Prospectus is not yet available to prospective purchasers, the Time of Sale Disclosure Package) to include an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which such statement was made, not misleading, or if during such period it is necessary or appropriate in the opinion of the Company or its counsel or the Underwriter or its counsel to amend the Registration Statement or supplement the Prospectus (or if the Prospectus is not yet available to prospective purchasers, the Time of Sale Disclosure Package) to comply with the Securities Act or to file under the Exchange Act any document that would be deemed to be incorporated by reference in the Prospectus in order to comply with the Securities Act or the Exchange Act, the Company will promptly notify the Underwriter, allow the Underwriter the opportunity to provide reasonable comments on such amendment, Prospectus or document, and will amend the Registration Statement or supplement the Prospectus (or if the Prospectus is not yet available to prospective purchasers, the Time of Sale Disclosure Package) or file such document (at the expense of the Company) so as to correct such statement or omission or effect such compliance.

(B) During the Prospectus Delivery Period, if at any time following the issuance of an Issuer Free Writing Prospectus there occurred or occurs an event or development the result of which is that such Issuer Free Writing Prospectus conflicted or would conflict with the information contained in the Registration Statement or any Prospectus or included or would include, when taken together with the Time of Sale Disclosure Package, 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 prevailing at that subsequent time, not misleading, the Company promptly will notify the Underwriter 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.

(iv) The Company shall take or cause to be taken all necessary action to qualify the Shares for sale under the securities laws of such jurisdictions as the Underwriter reasonably designates and to continue such qualifications in effect so long as required for the distribution of the Shares, except that the Company shall not be required in connection therewith to qualify as a foreign corporation or as a dealer in securities in any jurisdiction in which it is not so qualified, to execute a general consent to service of process in any state or to subject itself to taxation in respect of doing business in any jurisdiction in which it is not otherwise subject.

(v) The Company shall deliver to the Underwriter and its counsel copies, without charge, of the Registration Statement, the Prospectus, any Issuer Free Writing Prospectus, and all amendments and supplements to such documents, and signed copies of all consents and certificates of experts, in each case as soon as available and in such quantities as the Underwriter may from time to time reasonably request.

(vi) The Company will make generally available to its security holders as soon as practicable, but in any event not later than 15 months after the end of the Company's current fiscal quarter, an earnings statement (which need not be audited) covering a 12-month period that shall satisfy the provisions of Section 11(a) of the Securities Act and Rule 158 of the Rules and Regulations, provided that the Company will be deemed to have satisfied this obligation to the extent it files such documents on the EDGAR system of the Commission.

(vii) The Company shall use commercially reasonable efforts to maintain the listing of the shares of Common Stock on Nasdaq, the Nasdaq Global Select Market or the Nasdaq Capital Market for at least three years from the date of this Agreement unless the Company is acquired or goes private under Exchange Act Rule 13e-3 prior to such time.

(viii) For a period of three years from the Closing Date, the Company shall use its commercially reasonable efforts to maintain the registration of the Shares under the Exchange Act unless the Company is acquired or goes private under Exchange Act Rule 13e-3 prior to such time.

(ix) The Company, whether or not the transactions contemplated hereunder are consummated or this Agreement is terminated, will pay or cause to be paid (A) all expenses (including transfer taxes allocated to the respective transferees) incurred in connection with the delivery to the Underwriter of the Shares, (B) all expenses and fees (including, without limitation, fees and expenses of the Company's counsel) in connection with the preparation, printing, filing, delivery, and shipping of the Registration Statement (including the financial statements therein and all amendments, schedules, and exhibits thereto), the Shares, the Time of Sale Disclosure Package, any Prospectus, any Issuer Free Writing Prospectus and any amendment thereof or supplement thereto, (C) all reasonable filing fees (including those incurred in connection with blue sky filings) and, subject to the Expense Cap (as defined below), reasonable fees and disbursements of the Underwriter's counsel incurred in connection with the qualification of the Shares for offering and sale by the Underwriter or by dealers under the securities or blue sky laws of the states and other jurisdictions that the Underwriter shall designate, (D) the fees and expenses of any transfer agent or registrar, (E) all reasonable filing fees and, subject to the Expense Cap, reasonable fees and disbursements of Underwriter's counsel incident to any required review and approval by FINRA, of the terms of the sale of the Shares, (F) listing fees, if any, and (G) all other costs and expenses incident to the performance of its obligations hereunder that are not otherwise specifically provided for herein. In addition to the foregoing, the Company will reimburse the Underwriter for its reasonable, documented out-of-pocket legal fees, costs and other expenses incurred in connection with the purchase and sale of the Shares contemplated hereby, provided that such out of pocket legal fees, costs and other expenses, including the fees described in clauses (C) and (E) of the prior sentence as subject to the Expense Cap, and including costs and expenses associated with travel and lodging in connection with the Company's road show, shall not exceed \$100,000 in the aggregate (the "Expense Cap").

(x) The Company intends to apply the net proceeds from the sale of the Shares to be sold by it hereunder for the purposes set forth in the Time of Sale Disclosure Package and in the Prospectus.

(xi) The Company has not taken and will not take, directly or indirectly, during the Prospectus Delivery Period, any action designed to or which might reasonably be expected to cause or result in, or that has constituted, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Shares.

(xii) The Company represents and agrees that, unless it obtains the prior written consent of the Underwriter, and the Underwriter represents and agrees that, unless it obtains the prior written consent of the Company, it will not make any offer relating to the Shares that would constitute an Issuer Free Writing Prospectus; provided that the prior written consent of the parties hereto shall be deemed to have been given in respect of the free writing prospectuses included in Schedule III. Any such free writing prospectus consented to by the Company and the Underwriter is hereinafter referred to as a "Permitted Free Writing Prospectus." The Company represents that it has treated or agrees that it will treat each Permitted Free Writing Prospectus as an "issuer free writing prospectus," as defined in Rule 433, and has complied or will comply with the requirements of Rule 433 applicable to any Permitted Free Writing Prospectus, including timely Commission filing where required, legending and record-keeping.

(xiii) The Company hereby agrees that, without the prior written consent of the Underwriter, it will not, during the period ending 90 days after the date hereof ("Lock-Up Period"), (i) sell, offer to sell, contract or agree to sell, hypothecate, pledge, grant any option to purchase or otherwise dispose of or agree to dispose of, directly or indirectly, or file (or participate in the filing of) a registration statement with the Commission in respect of, or establish or increase a put equivalent position or liquidate or decrease a call equivalent position within the meaning of Section 16 of the Exchange Act with respect to, any Common Stock or any other securities of the Company that are substantially similar to Common Stock, or any securities convertible into or exchangeable or exercisable for, or any warrants or other rights to purchase, the foregoing, (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of Common Stock or any other securities of the Company that are substantially similar to Common Stock, or any securities convertible into or exchangeable or exercisable for, or any warrants or other rights to purchase, the foregoing, whether any such transaction is to be settled by delivery of Common Stock or such other securities, in cash or otherwise or (iii) publicly announce an intention to effect any transaction specified in clause (i) or (ii). The restrictions contained in the preceding sentence shall not apply to (1) the Shares to be sold hereunder, (2) the issuance, grant or sale of Common Stock or awards exercisable for or convertible into Common Stock pursuant to any Equity Plan, or any securities convertible into or exercisable or exchangeable for Common Stock not exercisable during the Lock-Up Period, (3) the issuance of Common Stock upon the conversion of securities or the exercise of warrants disclosed outstanding as of the date hereof in the Registration Statement (excluding exhibits thereto), the Time of Sale Disclosure Package or the Prospectus, provided that such securities or warrants have not been amended since the date of this Agreement to increase the number of such securities or warrants or to decrease the exercise price, exchange price or conversion price of such securities or warrants (other than in connection with stock splits or combinations) or to extend the term of such securities (4) the filing of one or more registration statements on Form S-8 with respect to one or more Equity Plans or (5) the offer, issuance and sale of shares of Common Stock, or any securities convertible into or exercisable or exchangeable for Common Stock, in connection with any acquisition or strategic investment (including any joint venture, strategic alliance or partnership), provided that (x) the aggregate number of shares of Common Stock issued or issuable pursuant to clause (5) does not exceed 5 % of the number of shares of Common Stock outstanding after giving effect to the sale of the Shares contemplated by this Agreement and (y) each recipient of any such shares or other securities pursuant to clause (5) agrees to restrictions on the resale of securities that are consistent with the provisions set forth in the lock-up agreements described in Section 6(k) for the remainder of the 90-day restricted period.

(xiv) Prior to the Closing Date, the Company will issue no press release or other communications directly or indirectly and hold no press conference with respect to the Company, the condition, financial or otherwise, or the earnings, business affairs or business prospects of any of them, or the offering of the Shares without the prior written consent of the Underwriter (such consent not to be unreasonably withheld, conditioned or delayed) unless in the judgment of the Company and its counsel, and after notification to the Underwriter, such press release or communication is required by law.

(xv) If at any time following the distribution of any Written Testing-the-Waters Communication there occurred or occurs an event or development as a result of which such Written Testing-the-Waters Communication included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing at that subsequent time, not misleading, the Company will promptly notify the Underwriter and will promptly amend or supplement, at its own expense, such Written Testing-the-Waters Communication to eliminate or correct such untrue statement or omission.

6. Conditions of the Underwriter's Obligations. The obligations of the Underwriter hereunder to purchase the Shares are subject to the accuracy, as of the date hereof and at the Closing Date (as if made at the Closing Date), of and compliance with all representations, warranties and agreements of the Company contained herein, the performance by the Company of its obligations hereunder and the following additional conditions:

(a) If filing of the Prospectus, or any amendment or supplement thereto, or any Issuer Free Writing Prospectus, is required under the Securities Act or the Rules and Regulations, the Company shall have filed the Prospectus (or such amendment or supplement) or such Issuer Free Writing Prospectus with the Commission in the manner and within the time period so required (without reliance on Rules 424(b)(8) or 164(b) under the Securities Act); the Registration Statement shall remain effective; no stop order suspending the effectiveness of the Registration Statement or any part thereof, any Rule 462 Registration Statement, or any amendment thereof, nor suspending or preventing the use of the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus shall have been issued; no proceedings for the issuance of such an order shall have been initiated or threatened by the Commission; any request of the Commission or the Underwriter for additional information (to be included in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus, any Issuer Free Writing Prospectus or otherwise) shall have been complied with to the satisfaction of the Underwriter.

(b) The Shares shall be qualified and approved for listing on Nasdaq, subject to official notice of issuance.

(c) FINRA shall have raised no objection to the fairness and reasonableness of the underwriting terms and arrangements.

(d) The Underwriter shall not have reasonably determined, and advised the Company, that the Registration Statement, the Time of Sale Disclosure Package or the Prospectus, or any amendment thereof or supplement thereto, or any Issuer Free Writing Prospectus, contains an untrue statement of fact which, in the Underwriter's reasonable opinion, is material, or omits to state a fact which, in the Underwriter's reasonable opinion, is material and is required to be stated therein or necessary to make the statements therein not misleading

(e) Between the date hereof and the Closing Date, (i) no downgrading shall have occurred in the rating accorded any of the Company's securities by any "nationally recognized statistical organization," as that term is defined by the Commission for purposes of Rule 436(g)(2) under the Securities Act, and (ii) no such organization shall have publicly announced that it has under surveillance or review, with possible negative implications, its rating of any of the Company's securities.

(f) On the Closing Date, there shall have been furnished to the Underwriter the opinion and negative assurance letter of Wilmer Cutler Pickering Hale and Dorr LLP, corporate counsel for the Company, dated as of the Closing Date and addressed to the Underwriter, in form and substance reasonably satisfactory to the Underwriter.

(g) On the Closing Date, there shall have been furnished to the Underwriter an opinion and negative assurance letter from Goodwin Procter LLP, the Company's intellectual property counsel, dated as of the Closing Date and addressed to the Underwriter, in form and substance reasonably satisfactory to the Underwriter.

(h) On the Closing Date, there shall be furnished to the Underwriter a negative assurance letter from Lowenstein Sandler LLP, counsel to the Underwriter, dated as of the Closing Date and addressed to the Underwriter, in form and substance reasonable satisfactory to the Underwriter.

(i) The Underwriter shall have received a letter from Ernst & Young LLP, on the date hereof and on the Closing Date addressed to the Underwriter, confirming that they are independent public accountants within the meaning of the Securities Act and are in compliance with the applicable requirements relating to the qualifications of accountants under Rule 2-01 of Regulation S-X of the Commission, and confirming, as of the date of each such letter (or, with respect to matters involving changes or developments since the respective dates as of which specified financial information is given in the Time of Sale Disclosure Package, as of a date not prior to the date hereof or more than five days prior to the date of such letter), the conclusions and findings of said firm, of the type ordinarily included in accountants' "comfort letters" to underwriters, with respect to the financial information, including any financial information contained in Exchange Act Reports filed by the Company or incorporated by reference in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, and other matters required by the Underwriter.

(j) On the Closing Date, there shall have been furnished to the Underwriter a certificate, dated as of the Closing Date and addressed to the Underwriter, signed by the chief executive officer and the principal financial officer of the Company, in their capacity as officers of the Company, to the effect that:

(i) The representations and warranties of the Company in this Agreement that are qualified by materiality or by reference to any Material Adverse Effect are true and correct in all respects, and all other representations and warranties of the Company in this Agreement are true and correct, in all material respects, as if made at and as of the Closing Date, and the Company has complied with all the agreements and satisfied all the conditions on its part to be performed or satisfied at or prior to the Closing Date;

(ii) No stop order or other order (A) suspending the effectiveness of the Registration Statement or any part thereof or any amendment thereof, (B) suspending the qualification of the Shares for offering or sale, or (C) suspending or preventing the use of the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus, has been issued, and no proceeding for that purpose has been instituted or, to their knowledge, is contemplated by the Commission or any state or regulatory body; and

(iii) There has been no occurrence of any event resulting or reasonably likely to result in a Material Adverse Effect during the period from and after the date of this Agreement and prior to the Closing Date.

(k) On or before the date hereof, the Underwriter shall have received duly executed "lock-up" agreements, in the form attached hereto as Schedule IV, between the Underwriter and each of the parties set forth on Schedule V hereto.

(l) The Common Stock shall be registered under the Exchange Act and shall be listed on Nasdaq, and the Company shall not have taken any action designed to terminate, or likely to have the effect of terminating, the registration of the Common Stock under the Exchange Act or delisting or suspending from trading the Common Stock from Nasdaq, nor shall the Company have received any information suggesting that the Commission is contemplated terminating such registration or listing.

(m) The Company shall have furnished to the Underwriter and its counsel such additional documents, certificates and evidence as the Underwriter or such counsel may have reasonably requested.

(n) On the Closing Date, the Shares shall have been delivered via the Depository Trust Company system to the account of the Underwriter.

If any condition specified in this Section 6 shall not have been fulfilled when and as required to be fulfilled, this Agreement may be terminated by the Underwriter by notice to the Company at any time at or prior to the Closing Date and such termination shall be without liability of any party to any other party, except that Section 5(a)(x), Section 7 and Section 8 shall survive any such termination and remain in full force and effect.

7. Indemnification and Contribution.

(a) The Company agrees to indemnify, defend and hold harmless the Underwriter, its affiliates, directors and officers and employees, and each person, if any, who controls the Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, from and against any losses, claims, damages or liabilities to which the Underwriter or such person may become subject, under the Securities Act or otherwise (including in settlement of any litigation if such settlement is effected with the written consent of the Company), insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon (i) an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, including the information deemed to be a part of the Registration Statement at the time of effectiveness and at any subsequent time pursuant to Rule 430B of the Rules and Regulations, or arise out of or are based upon the omission from the Registration Statement, or alleged omission to state therein, a material fact required to be stated therein or necessary to make the statements therein not misleading (ii) an untrue statement or alleged untrue statement of a material fact contained in the Time of Sale Disclosure Package, the Prospectus, or any amendment or supplement thereto (including any documents filed under the Exchange Act and deemed to be incorporated by reference into the Registration Statement, the Time of Sale Disclosure Package or the Prospectus), or any Issuer Free Writing Prospectus or any Written Testing-the-Waters Communication or the Marketing Materials, or arise out of or are based upon the omission or alleged omission to state therein 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, (iii) in whole or in part, any inaccuracy in the representations and warranties of the Company contained herein, or (iv) in whole or in part, any failure of the Company to perform its obligations hereunder or under law, and will reimburse such party for any legal or other expenses reasonably incurred by it in connection with evaluating, investigating or defending against such loss, claim, damage, liability or action (or any legal or other expense reasonably incurred in connection with the evaluation, investigation or defense thereof); *provided, however*, that the Company shall not be liable in any such case to the extent that any such loss, claim, damage, liability or action arises out of or is based upon an untrue statement or alleged untrue statement or omission or alleged omission made in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus, or any amendment or supplement thereto or any Issuer Free Writing Prospectus or Written Testing-the-Waters Communication, in reliance upon and in conformity with written information furnished to the Company by the Underwriter, which written information is described in Section 7(f).

(b) The Underwriter will indemnify, defend and hold harmless the Company, its affiliates, directors, officers and employees, and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, from and against any losses, claims, damages or liabilities to which the Company may become subject, under the Securities Act or otherwise (including in settlement of any litigation, if such settlement is effected with the written consent of the Underwriter), insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus, or any amendment or supplement thereto, any Issuer Free Writing Prospectus or any "issuer information" filed or required to be filed pursuant to Rule 433(d) under the Act, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus, or any amendment or supplement thereto or any Issuer Free Writing Prospectus or any "issuer information" filed or required to be filed pursuant to Rule 433(d) under the Act in reliance upon and in conformity with written information furnished to the Company by the Underwriter specifically for use in the preparation thereof, and will reimburse the Company for any legal or other expenses reasonably incurred by the Company in connection with defending against any such loss, claim, damage, liability or action.

(c) Promptly after receipt by an indemnified party under subsection (a) or (b) above of notice of the commencement of any action, such indemnified party shall, if a claim in respect thereof is to be made against the indemnifying party under such subsection, notify the indemnifying party in writing of the commencement thereof; but the failure to notify the indemnifying party shall not relieve the indemnifying party from any liability that it may have to any indemnified party except to the extent such indemnifying party has been materially prejudiced by such failure. In case any such action shall be brought against any indemnified party, it shall notify the indemnifying party of the commencement thereof, and the indemnifying party shall be entitled to participate in, and, to the extent that it shall wish, jointly with any other indemnifying party similarly notified, to assume the defense thereof, with counsel reasonably satisfactory to such indemnified party, and after notice from the indemnifying party to such indemnified party of the indemnifying party's election so to assume the defense thereof, the indemnifying party shall not be liable to such indemnified party under such subsection for any legal or other expenses subsequently incurred by such indemnified party in connection with the defense thereof; *provided, however*, that if (i) the indemnified party has reasonably concluded (based on advice of counsel) that there may be legal defenses available to it or other indemnified parties that are different from or in addition to those available to the indemnifying party, (ii) a conflict or potential conflict exists (based on advice of counsel to the indemnified party) between the indemnified party and the indemnifying party (in which case the indemnifying party will not have the right to direct the defense of such action on behalf of the indemnified party), or (iii) the indemnifying party has not in fact employed counsel reasonably satisfactory to the indemnified party to assume the defense of such action within a reasonable time after receiving notice of the commencement of the action, the indemnified party shall have the right to employ a single counsel to represent it in any claim in respect of which indemnity may be sought under subsection (a) or (b) of this Section 7, in which event the reasonable fees and expenses of such separate counsel shall be borne by the indemnifying party or parties and reimbursed to the indemnified party as incurred.

The indemnifying party under this Section 7 shall not be liable for any settlement of any proceeding effected without its written consent, but if settled with such consent or if there be a final judgment for the plaintiff, the indemnifying party agrees to indemnify the indemnified party against any loss, claim, damage, liability or expense by reason of such settlement or judgment. No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement, compromise or consent to the entry of judgment in any pending or threatened action, suit or proceeding in respect of which any indemnified party is a party or could be named and indemnity was or would be sought hereunder by such indemnified party, unless such settlement, compromise or consent (a) includes an unconditional release of such indemnified party from all liability for claims that are the subject matter of such action, suit or proceeding and (b) does not include a statement as to or an admission of fault, culpability or a failure to act by or on behalf of any indemnified party.

(d) If the indemnification provided for in this Section 7 is unavailable or insufficient to hold harmless an indemnified party under subsection (a) or (b) above, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of the losses, claims, damages or liabilities referred to in subsection (a) or (b) above, (i) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriter on the other from the offering and sale of the Shares 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 Underwriter on the other in connection with the statements or omissions that resulted in such losses, claims, damages or liabilities, as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriter on the other shall be deemed to be in the same proportion as the total net proceeds from the offering (before deducting expenses) received by the Company bear to the total underwriting discount received by the Underwriter, in each case as set forth in the table on the cover page of the Prospectus. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company or the Underwriter and the parties' relevant intent, knowledge, access to information and opportunity to correct or prevent such untrue statement or omission. The Company and the Underwriter agree that it would not be just and equitable if contributions pursuant to this subsection (d) were to be determined by pro rata allocation or by any other method of allocation that does not take account of the equitable considerations referred to in the first sentence of this subsection (d). The amount paid by an indemnified party as a result of the losses, claims, damages or liabilities referred to in the first sentence of this subsection (d) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending against any action or claim that is the subject of this subsection (d). Notwithstanding the provisions of this subsection (d), the Underwriter shall not be required to contribute any amount in excess of the underwriting discount actually received by the Underwriter. 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.

(e) The obligations of the Company under this Section 7 shall be in addition to any liability that the Company may otherwise have and the benefits of such obligations shall extend, upon the same terms and conditions, to each person, if any, who controls the Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act; and the obligations of the Underwriter under this Section 7 shall be in addition to any liability that the Underwriter may otherwise have and the benefits of such obligations shall extend, upon the same terms and conditions, to the Company, and officers, directors and each person who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act.

(f) For purposes of this Agreement, the Underwriter confirms, and the Company acknowledges, that there is no information concerning the Underwriter furnished in writing to the Company by the Underwriter specifically for preparation of or inclusion in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus, other than the statements set forth in the first paragraph under the subheading “Discounts and Commissions” of the “Underwriting” section of the Prospectus and Time of Sale Disclosure Package, and the paragraphs under the subheading “Price Stabilization, Short Positions and Penalty Bids” of the “Underwriting” section of the Prospectus and Time of Sale Disclosure Package.

8. Representations and Agreements to Survive Delivery. All representations, warranties, and agreements of the Company herein or in certificates delivered pursuant hereto, including, but not limited to, the agreements of the Underwriter and the Company contained in Section 5(a)(x) and Section 7 hereof, shall remain operative and in full force and effect regardless of any investigation made by or on behalf of the Underwriter or any controlling person thereof, or the Company or any of its officers, directors, or controlling persons, and shall survive delivery of, and payment for, the Shares to and by the Underwriter hereunder.

9. Termination of this Agreement.

(a) The Underwriter shall have the right to terminate this Agreement by giving notice to the Company as hereinafter specified at any time at or prior to the Closing Date, if in the discretion of the Underwriter, (i) there has occurred any material adverse change in the securities markets or any event, act or occurrence that has materially disrupted, or in the opinion of the Underwriter, will in the future materially disrupt, the securities markets or there shall be such a material adverse change in general financial, political or economic conditions or the effect of international conditions on the financial markets in the United States is such as to make it, in the judgment of the Underwriter, inadvisable or impracticable to market the Shares or enforce contracts for the sale of the Shares, (ii) trading in the Company’s Common Stock shall have been suspended by the Commission or Nasdaq or trading in securities generally on the Nasdaq Stock Market, the New York Stock Exchange (“NYSE”), or the NYSE American shall have been suspended, (iii) minimum or maximum prices for trading shall have been fixed, or maximum ranges for prices for securities shall have been required, on the Nasdaq Stock Market, NYSE or NYSE American, by such exchange or by order of the Commission or any other governmental authority having jurisdiction, (iv) a banking moratorium shall have been declared by federal or state authorities, (v) there shall have occurred any attack on, outbreak or escalation of hostilities or act of terrorism involving the United States, any declaration by the United States of a national emergency or war, any substantial change or development involving a prospective substantial change in United States or international political, financial or economic conditions or any other calamity or crisis, (vi) the Company suffers any loss by strike, fire, flood, earthquake, accident or other calamity, whether or not covered by insurance, or (vii) in the judgment of the Underwriter, there has been, since the time of execution of this Agreement or since the respective dates as of which information is given in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, any material adverse change in the assets, properties, condition, financial or otherwise, or in the results of operations, business affairs or business prospects of the Company and its subsidiaries considered as a whole, whether or not arising in the ordinary course of business. Any such termination shall be without liability of any party to any other party except that the provisions of Section 5(a)(x) and Section 7 hereof shall at all times be effective and shall survive such termination.

(b) If the Underwriter elects to terminate this Agreement as provided in this Section, the Company shall be notified promptly by the Underwriter by telephone, confirmed by letter.

10. Notices. Except as otherwise provided herein, all communications hereunder shall be in writing and, if to the Underwriter, shall be mailed, delivered or telecopied to Oppenheimer & Co. Inc., 85 Broad Street, New York, NY 10004, Attention: Managing Director, with a copy to Lowenstein Sandler LLP, 1251 Avenue of the Americas, New York, NY 10020, telecopy number: (212) 262-7402, Attention: John D. Hogoboom; and if to the Company, shall be mailed, delivered or telecopied to it at One Hundred High Street, Floor 28, Boston, MA 02110, telecopy number: (617) 273-2637, Attention: Jill C. Milne, Ph.D., President and Chief Executive Officer, with a copy to WilmerHale, 60 State Street, Boston, MA 02109, telecopy number: (617) 526-5000, Attention: Rosemary G. Reilly; or in each case to such other address as the person to be notified may have requested in writing. Any party to this Agreement may change such address for notices by sending to the parties to this Agreement written notice of a new address for such purpose.

11. Persons Entitled to Benefit of Agreement. This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective successors and assigns and the controlling persons, officers and directors referred to in Section 7. Nothing in this Agreement is intended or shall be construed to give to any other person, firm or corporation any legal or equitable remedy or claim under or in respect of this Agreement or any provision herein contained. The term "successors and assigns" as herein used shall not include any purchaser, as such purchaser, of any of the Shares from the Underwriter.

12. Absence of Fiduciary Relationship. The Company acknowledges and agrees that: (a) the Underwriter has been retained solely to act as underwriter in connection with the sale of the Shares and that no fiduciary, advisory or agency relationship between the Company and the Underwriter has been created in respect of any of the transactions contemplated by this Agreement, irrespective of whether the Underwriter has advised or is advising the Company on other matters; (b) the price and other terms of the Shares set forth in this Agreement were established by the Company following discussions and arms-length negotiations with the Underwriter and the Company is capable of evaluating and understanding and understands and accepts the terms, risks and conditions of the transactions contemplated by this Agreement; (c) it has been advised that the Underwriter and its affiliates are engaged in a broad range of transactions that may involve interests that differ from those of the Company and that the Underwriter has any obligation to disclose such interest and transactions to the Company by virtue of any fiduciary, advisory or agency relationship; (d) it has been advised that the Underwriter is acting, in respect of the transactions contemplated by this Agreement, solely for the benefit of the Underwriter, and not on behalf of the Company.

13. Amendments and Waivers. No supplement, modification or waiver of this Agreement shall be binding unless executed in writing by the party to be bound thereby. The failure of a party to exercise any right or remedy shall not be deemed or constitute a waiver of such right or remedy in the future. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provision hereof (regardless of whether similar), nor shall any such waiver be deemed or constitute a continuing waiver unless otherwise expressly provided.

14. Partial Unenforceability. The invalidity or unenforceability of any section, paragraph, clause or provision of this Agreement shall not affect the validity or enforceability of any other section, paragraph, clause or provision.

15. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of New York.

16. Submission to Jurisdiction. The Company hereto irrevocably (a) submits to the jurisdiction of any court of the State of New York for the purpose of any suit, action, or other proceeding arising out of this Agreement, or any of the agreements or transactions contemplated by this Agreement, the Registration Statement and the Prospectus (each a "Proceeding"), (b) agrees that all claims in respect of any Proceeding may be heard and determined in any such court, (c) waives, to the fullest extent permitted by law, any immunity from jurisdiction of any such court or from any legal process therein, (d) agrees not to commence any Proceeding other than in such courts, and (e) waives, to the fullest extent permitted by law, any claim that such Proceeding is brought in an inconvenient forum. THE COMPANY (ON BEHALF OF ITSELF AND, TO THE FULLEST EXTENT PERMITTED BY LAW, ON BEHALF OF ITS RESPECTIVE EQUITY HOLDERS AND CREDITORS) HEREBY WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY CLAIM BASED UPON, ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT AND THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT, THE REGISTRATION STATEMENT, AND THE PROSPECTUS.

17. Counterparts. This Agreement may be executed and delivered (including by facsimile transmission and electronic mail attaching a portable document file (.pdf)) in one or more counterparts and, if executed in more than one counterpart, the executed counterparts shall each be deemed to be an original and all such counterparts shall together constitute one and the same instrument.

Please sign and return to the Company the enclosed duplicates of this Agreement whereupon this Agreement will become a binding agreement between the Company and the Underwriter in accordance with its terms.

Very truly yours,

CATABASIS PHARMACEUTICALS, INC.

By: /s/ Jill C. Milne

Name: Jill C. Milne

Title: President and Chief Executive Officer

Confirmed as of the date first above-mentioned

OPPENHEIMER & CO. INC.

By: /s/ Peter Bennett

Name: Peter Bennett

Title: Managing Director

[Signature page to Underwriting Agreement]

SCHEDULE I

Pricing Information (to be provided orally only)

Number of Firm Shares to be Issued:	4,600,000
Public Offering Price per Share:	\$ 5.00
Underwriting Discount:	\$ 0.30
Number of Option Shares:	690,000

SCHEDULE II

Testing the Waters Communications

None

SCHEDULE III

Free Writing Prospectus

None

SCHEDULE IV
FORM OF LOCK-UP AGREEMENT

SCHEDULE V

List of Lock-Up Parties

January 30, 2020

Catabasis Pharmaceuticals, Inc.
One Hundred High Street
Floor 28
Boston, Massachusetts 02110

Re: Prospectus Supplement to Registration Statement on Form S-3

Ladies and Gentlemen:

This opinion is furnished to you in connection with (i) the Registration Statement on Form S-3 (File No. 333-231441) (the "Registration Statement") filed by Catabasis Pharmaceuticals, Inc., a Delaware corporation (the "Registrant"), with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), for the purpose of registering with the Commission under the Securities Act, among other things, shares of common stock, \$0.001 par value per share ("Common Stock"), of the Registrant, which may be issued and sold by the Registrant from time to time on a delayed or continuous basis pursuant to Rule 415 under the Securities Act at an aggregate initial offering price not to exceed \$250,000,000, as set forth in the Registration Statement and the prospectus contained therein; and (ii) the prospectus supplement, dated January 30, 2020 (the "Prospectus Supplement"), relating to the issuance and sale pursuant to the Registration Statement of up to 5,290,000 shares of Common Stock (the "Shares"), including up to 690,000 shares of Common Stock issuable upon exercise of an option to purchase additional shares granted by the Company.

The Shares are to be sold by the Registrant pursuant to an underwriting agreement, dated January 30, 2020 (the "Underwriting Agreement"), between the Registrant and Oppenheimer & Co. Inc., which is being filed with the Commission as Exhibit 1.1 to the Registrant's Current Report on Form 8-K, filed on the date hereof.

We are acting as counsel for the Registrant in connection with the issuance and sale by the Registrant of the Shares. We have examined a signed copy of the Registration Statement as filed with the Commission, including the exhibits thereto, and the Prospectus Supplement as filed with the Commission. We have also examined and relied upon the Underwriting Agreement, minutes of meetings or actions by written consent of the stockholders and the Board of Directors of the Registrant as provided to us by the Registrant, the Certificate of Incorporation and Bylaws of the Registrant, each as restated and/or amended to date, and such other documents as we have deemed necessary for purposes of rendering the opinions hereinafter set forth.

Wilmer Cutler Pickering Hale and Dorr LLP, 60 State Street, Boston, Massachusetts 02109

Beijing Berlin Boston Brussels Denver Frankfurt London Los Angeles New York Palo Alto San Francisco Washington

In our examination of the foregoing documents, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as copies, the authenticity of the originals of such latter documents and the legal competence of all signatories to such documents.

We express no opinion herein as to the laws of any state or jurisdiction other than the General Corporation Law of the State of Delaware.

Based upon and subject to the foregoing, we are of the opinion that the Shares have been duly authorized for issuance and, when the Shares are issued and paid for in accordance with the terms and conditions of the Underwriting Agreement, the Shares will be validly issued, fully paid and non-assessable.

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters. This opinion is based upon currently existing statutes, rules, regulations and judicial decisions, and we disclaim any obligation to advise you of any change in any of these sources of law or subsequent legal or factual developments which might affect any matters or opinions set forth herein.

We hereby consent to the filing of this opinion with the Commission as an exhibit to the Current Report on Form 8-K to be filed by the Registrant in connection with the issuance and sale of the Shares in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act and to the use of our name therein and in the Prospectus Supplement under the caption "Legal Matters." In giving such consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission.

[Signature page follows]

Very truly yours,

WILMER CUTLER PICKERING
HALE AND DORR LLP

By: /s/ Rosemary G. Reilly
Rosemary G. Reilly, a Partner



Catabasis Pharmaceuticals Announces Pricing of \$23 Million Underwritten Public Offering

BOSTON, Mass., January 30, 2020 – Catabasis Pharmaceuticals, Inc. (“Catabasis,” the “Company,” “we,” “our,” or “us”) (NASDAQ: CATB), a clinical-stage biopharmaceutical company, today announced the pricing of an underwritten public offering of an aggregate of 4,600,000 shares of common stock at a public offering price of \$5.00 per share. The offering is expected to close on or about February 3, 2020, subject to customary closing conditions. Catabasis has granted the underwriters a 30-day option to purchase up to 690,000 additional shares of common stock at the public offering price, less the underwriting discount, to cover over-allotments, if any.

Oppenheimer & Co. Inc. is acting as sole underwriter for the offering.

The gross proceeds of the offering are expected to be approximately \$23 million, prior to deducting the underwriting discount and other estimated offering expenses.

Catabasis intends to use the net proceeds from the offering for clinical trial and other research and development activities; initial commercialization preparations; and for working capital and other general corporate purposes.

The securities described above are being offered pursuant to a prospectus supplement and an accompanying base prospectus forming part of a shelf registration statement on Form S-3 (File No. 333-231441), which was declared effective by the Securities and Exchange Commission (“SEC”) on May 23, 2019. A final prospectus supplement relating to the offering will be filed with the SEC and will be available on the SEC’s website located at <http://www.sec.gov>. When available, copies of the final prospectus supplement and the accompanying base prospectus may be obtained for free by contacting Oppenheimer & Co. Inc. Attention: Syndicate Prospectus Department, 85 Broad St., 26th Floor, New York, NY 10004, by telephone at (212) 667-8055 or by email at EquityProspectus@opco.com.

This press release does not constitute an offer to sell or the solicitation of an offer to buy any of the securities described herein, nor shall there be any sale of these securities in any state or other jurisdiction in which such offer, solicitation or sale would be unlawful prior to the registration or qualification under the securities laws of any such state or other jurisdiction.

About Catabasis

At Catabasis Pharmaceuticals, our mission is to bring hope and life-changing therapies to patients and their families. Our lead program is edasalonexent, an NF-κB inhibitor in Phase 3 development for the treatment of Duchenne muscular dystrophy.

Forward Looking Statements

Any statements in this press release about future expectations, plans and prospects for the Company, including statements about the anticipated completion, timing and size of the public offering and the anticipated use of net proceeds therefrom, among other things, statements containing the words “believes,” “anticipates,” “plans,” “expects,” “may” and similar expressions, constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including: risks and uncertainties associated with market conditions, the satisfaction of customary closing conditions relating to the public offering and the Company’s intended use of proceeds, as well as uncertainties inherent in the initiation and completion of preclinical studies and clinical trials and clinical development of the Company’s product candidates; whether interim results from a clinical trial will be predictive of the final results of the trial or the results of future trials; expectations for regulatory approvals to conduct trials or to market products; availability of funding sufficient for the Company’s foreseeable and unforeseeable operating expenses and capital expenditure requirements; other matters that could affect the availability or commercial potential of the Company’s product candidates; and general economic and market conditions and other factors discussed in the “Risk Factors” section of the prospectus supplement and the accompanying base prospectus to the Company’s Registration Statement on Form S-3 relating to this offering, which will be filed with the SEC, and the Company’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, which is on file with the SEC, and in other filings that the Company may make with the SEC in the future. In addition, the forward-looking statements included in this press release represent the Company’s views as of the date of this press release. The Company anticipates that subsequent events and developments will cause the Company’s views to change. However, while the Company may elect to update these forward-looking statements at some point in the future, the Company specifically disclaims any obligation to do so. These forward-looking statements should not be relied upon as representing the Company’s views as of any date subsequent to the date of this release.

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Investor and Media Contact

Andrea Matthews
Catabasis Pharmaceuticals, Inc.
T: (617) 349-1971
amatthews@catabasis.com
