
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 8-K

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

Date of report (Date of earliest event reported): **May 9, 2018**

RA PHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

001-37926
(Commission
File Number)

26-2908274
(I.R.S. Employer
Identification No.)

87 Cambridge Park Drive
Cambridge, MA
(Address of principal executive offices)

02140
(Zip Code)

(617) 401-4060
(Registrant's telephone number, include area code)

Not Applicable
(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:

- 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))

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 May 9, 2018, Ra Pharmaceuticals, Inc. (the “Company” or “we”) entered into a Sales Agreement (the “Sales Agreement”) with Stifel, Nicolaus & Company, Incorporated. (“Stifel”) pursuant to which the Company may sell from time to time, at its option, up to an aggregate of \$50.0 million of shares of its common stock (the “Shares”) through Stifel, as sales agent. Sales of the Shares, if any, will be made under the Company’s previously filed and currently effective Registration Statement on Form S-3 (Reg. No. 333-221266) by methods deemed to be “at the market offerings” as defined in Rule 415 promulgated under the Securities Act of 1933, as amended. Stifel will use reasonable efforts to sell the Shares from time to time, based upon the Company’s instructions (including any price, time or size limits or other customary parameters or conditions the Company may impose). The Company cannot provide any assurances that it will issue any shares of its common stock pursuant to the Sales Agreement. The Company will pay Stifel a commission of up to 3.00% of the gross proceeds from the sale of the Shares, if any. The Company has also agreed to provide Stifel with customary indemnification rights. The offering of the Shares will terminate upon the earliest of (a) the sale of all of the Shares or (b) the termination of the Sales Agreement by the Company or Stifel.

The foregoing description of the Sales Agreement is not complete and is qualified in its entirety by reference to the full text of such agreement, a copy of which is filed herewith as Exhibit 10.1 to this Current Report on Form 8-K and is incorporated herein by reference.

Latham & Watkins LLP, counsel to the Company, has issued an opinion to the Company, dated May 9, 2018, regarding the validity of the shares of common stock to be issued and sold pursuant to the Sales Agreement. A copy of the opinion is filed as Exhibit 5.1 to this Current Report on Form 8-K.

This Current Report on Form 8-K shall not constitute an offer to sell or the solicitation of any offer to buy the securities discussed herein, nor shall there be any offer, solicitation, or sale of the securities in any state in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits:

<u>Exhibit No.</u>	<u>Description</u>
5.1	<u>Opinion of Latham & Watkins LLP.</u>
10.1	<u>Sales Agreement, dated as of May 9, 2018, by and between Ra Pharmaceuticals, Inc. and Stifel, Nicolaus & Company, Incorporated.</u>
23.1	<u>Consent of Latham & Watkins LLP (included in Exhibit 5.1).</u>

SIGNATURES

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

RA PHARMACEUTICALS, INC.

Date: May 9, 2018

By: /s/ David C. Lubner
David C. Lubner
Executive Vice President and Chief Financial Officer

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LATHAM & WATKINS LLP

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May 9, 2018

Ra Pharmaceuticals, Inc.
 87 Cambridge Park Drive
 Cambridge, MA 02140

Re: Registration Statement on Form S-3 (Registration No. 333-221266); Shares of Common Stock, \$0.001 par value per share, having an aggregate offering price of up to \$50,000,000

Ladies and Gentlemen:

We have acted as special counsel to Ra Pharmaceuticals, Inc., a Delaware corporation (the “*Company*”), in connection with the proposed issuance of shares with an aggregate offering price of up to \$50,000,000 (the “*Shares*”) of common stock, \$0.001 par value per share (the “*Common Stock*”), pursuant to (i) a registration statement on Form S-3 under the Securities Act of 1933, as amended (the “*Act*”), filed with the Securities and Exchange Commission (the “*Commission*”) on November 1, 2017 (Registration No. 333-221266) (as amended, the “*Registration Statement*”), (ii) a base prospectus dated November 14, 2017 (the “*Base Prospectus*”), (iii) a related prospectus supplement dated May 9, 2018 filed with the Commission pursuant to Rule 424(b) under the Act (together with Base Prospectus, the “*Prospectus*”) and (iv) that certain Sales Agreement, dated as of May 9, 2018, by and between the Company and Stifel, Nicolaus & Company, Incorporated (the “*Sales Agreement*”). This opinion is being furnished in connection with the requirements of Item 601(b)(5) of Regulation S-K under the Act, and no opinion is expressed herein as to any matter pertaining to the contents of the Registration Statement or related Prospectus, other than as expressly stated herein with respect to the issue of the Shares.

As such counsel, we have examined such matters of fact and questions of law as we have considered appropriate for purposes of this letter. With your consent, we have relied upon certificates and other assurances of officers of the Company and others as to factual matters without having independently verified such factual matters. We are opining herein as to the General Corporation Law of the State of Delaware, and we express no opinion with respect to any other laws.

Subject to the foregoing and the other matters set forth herein, it is our opinion that, as of the date hereof, when the Shares shall have been duly registered on the books of the transfer agent and registrar therefor in the name or on behalf of the purchasers, and have been issued by the Company against payment therefor (not less than par value) in the circumstances contemplated by the Sales Agreement, the issue and sale of the Shares will have been duly authorized by all necessary corporate action of the Company, and the Shares will be validly issued, fully paid and nonassessable. In rendering the foregoing opinion, we have assumed that (i) the Company will comply with all applicable notice requirements regarding uncertificated shares provided in the General Corporation Law of the State of Delaware and (ii) upon the issue of any of the Shares, the total number of shares of Common Stock issued and outstanding will not exceed the total number of shares of Common Stock that the Company is then authorized to issue under its Third Amended and Restated Certificate of Incorporation and by the board of directors of the Company in connection with the offering contemplated by the Registration Statement.

This opinion is for your benefit in connection with the Registration Statement and may be relied upon by you and by persons entitled to rely upon it pursuant to the applicable provisions of the Act. We consent to your filing this opinion as an exhibit to the Company's Form 8-K dated May 9, 2018 and to the reference to our firm in the Prospectus under the heading "Legal Matters." In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ LATHAM & WATKINS LLP

RA PHARMACEUTICALS, INC.

Common Stock
(\$0.001 par value per share)

AT-THE-MARKET EQUITY OFFERING SALES AGREEMENT

May 9, 2018

STIFEL, NICOLAUS & COMPANY, INCORPORATED
One South Street, 15th Floor
Baltimore, Maryland 21202

Ladies and Gentlemen:

Ra Pharmaceuticals, Inc., a Delaware corporation (the "Company"), proposes, subject to the terms and conditions stated herein, to issue and sell from time to time to or through Stifel, Nicolaus & Company, Incorporated ("Stifel Nicolaus"), as sales agent and/or principal ("Agent"), shares (the "Shares") of the Company's common stock, \$0.001 par value per share (the "Common Stock"), having an aggregate offering price of up to \$50,000,000 on the terms set forth in Section 2 of this At-The-Market Equity Offering Sales Agreement (the "Agreement"). The Company agrees that whenever it determines to sell Shares directly to the Agent as principal, it will enter into a separate agreement (each, a "Terms Agreement") in substantially the form of Annex I hereto, relating to such sale in accordance with Section 3 of this Agreement.

Section 1. Representations and Warranties. Except as disclosed in the Registration Statement (as defined below), Prospectus (as defined below) or General Disclosure Package (as defined below), the Company represents and warrants to the Agent that, unless such representation or warranty specifies otherwise, as of the date of this Agreement, any Representation Date (as defined in Section 3(j) below), each Applicable Time (as defined in Section 1(a) below) and each Settlement Date (as defined in Section 2 below):

(a) Compliance with Registration Requirements. The Company has filed with the Securities and Exchange Commission (the "Commission") a registration statement under the Securities Act of 1933, as amended (the "1933 Act"), on Form S-3 (Reg. No. 333-221226) in respect of the Company's Common Stock (including the Shares) (collectively, the "Securities") not declared effective by the Commission earlier than three years prior to the date hereof; such registration statement, and any post-effective amendment thereto, has become effective; and no stop order suspending the effectiveness of such registration statement or any part thereof has been issued and no proceeding for that purpose has been initiated or, to the knowledge of the Company, threatened by the Commission (the base prospectus filed as part of such registration statement, in the form in which it has most recently been filed with the Commission on or prior to the date of this Agreement, is hereinafter called the "Basic Prospectus"; the various parts of such registration statement, including all exhibits thereto and any prospectus supplement relating to the Shares that is filed with the Commission and deemed by virtue of Rule 430B under the 1933 Act to be part of such registration statement, each as amended at the time such part of the registration statement became effective, including any post-effective amendments thereto, are hereinafter collectively called the "Registration Statement"; the prospectus supplement specifically relating to the Shares prepared and filed with the Commission pursuant to Rule 424(b) under the 1933 Act is hereinafter called the "Prospectus Supplement"; the Basic Prospectus, as amended and supplemented by the Prospectus Supplement, is hereinafter called the "Prospectus"; any reference herein to the Basic Prospectus, the Prospectus Supplement or the Prospectus shall be deemed to refer to and include the documents incorporated by reference therein pursuant to Item 12 of Form S-3 under the 1933 Act; any reference to any amendment or supplement to the Basic Prospectus, the Prospectus Supplement or the Prospectus shall be deemed to refer to and include any post-effective amendment to the Registration Statement, any prospectus supplement relating to the Shares filed with the Commission pursuant to Rule 424(b) under the 1933 Act and any documents filed under the Securities Exchange Act of 1934, as amended (the "1934 Act"), and the rules and regulations of the Commission thereunder (the "1934 Act Regulations"), and incorporated therein, in each case after the date of the Basic Prospectus, the Prospectus Supplement or the Prospectus, as the case may be; any reference to

any amendment to the Registration Statement shall be deemed to refer to and include any annual report of the Company filed pursuant to Section 13(a) or 15(d) of the 1934 Act after the effective date of the Registration Statement that is incorporated by reference in the Registration Statement; and any “issuer free writing prospectus” as defined in Rule 433 under the 1933 Act relating to the Shares is hereinafter called an “Issuer Free Writing Prospectus”.

No order preventing or suspending the use of the Basic Prospectus, the Prospectus Supplement, the Prospectus or any Issuer Free Writing Prospectus has been issued by the Commission, and the Basic Prospectus and the Prospectus Supplement, at the time of filing thereof, conformed in all material respects to the requirements of the 1933 Act and the rules and regulations of the Commission thereunder (the “1933 Act Regulations”) and did 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.

For the purposes of this Agreement, “Applicable Time” means, with respect to any Shares, the time of sale of such Shares pursuant to this Agreement; the Prospectus and the applicable Issuer Free Writing Prospectus(es) issued at or prior to such Applicable Time, taken together (collectively, and, with respect to any Shares, together with the public offering price of such Shares, the “General Disclosure Package”) as of each Applicable Time and each Settlement Date, will not include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; and each applicable Issuer Free Writing Prospectus will not conflict with the information contained in the Registration Statement, the Prospectus Supplement or the Prospectus and each such Issuer Free Writing Prospectus, as supplemented by and taken together with the General Disclosure Package as of such Applicable Time, will not include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(b) Incorporation of Documents by Reference. The documents incorporated or deemed to be incorporated by reference in the Registration Statement and the Prospectus, when they became effective or were filed with the Commission, as the case may be, complied in all material respects with the requirements of the 1934 Act and the 1934 Act Regulations, and, when read together with the other information in the Prospectus, (a) at the time the Registration Statement became effective, (b) at the time the Prospectus was issued and (c) on the date of this Agreement, did not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(c) Independent Accountants. The accountants who certified the financial statements and supporting schedules included in the Registration Statement are independent public accountants as required by the 1933 Act and the 1933 Act Regulations.

(d) Financial Statements. The financial statements included or incorporated by reference in the Registration Statement, the General Disclosure Package and the Prospectus, together with the related schedules and notes, present fairly, in all material respects, the financial position of the Company and its consolidated Subsidiaries (as defined below) at the dates indicated and the statement of operations, stockholders’ equity and cash flows of the Company and its consolidated Subsidiaries for the periods specified; said financial statements have been prepared in conformity with generally accepted accounting principles in the United States (“GAAP”) applied on a consistent basis throughout the periods involved except as may be set forth in the notes included or incorporated by reference and except that unaudited financial statements may not contain footnotes required by GAAP. The supporting schedules, if any, present fairly, in all material respects, in accordance with GAAP the information required to be stated therein. The selected financial data and the summary financial information included in the Prospectus present fairly, in all material respects, the information shown therein and have been compiled on a basis consistent with that of the audited financial statements included or incorporated by reference in the Registration Statement.

(e) No Material Adverse Change in Business. Since the respective dates as of which information is given in the Registration Statement, the General Disclosure Package or the Prospectus, except as otherwise stated therein, (A) there has been no material adverse change, or any development that could reasonably be expected to result in a material adverse change, in the condition, financial or otherwise, or in the earnings, business affairs or business prospects of the Company and its Subsidiaries considered as one enterprise, whether or not arising in the

ordinary course of business (a “Material Adverse Effect”), (B) there have been no transactions entered into by the Company or any of its Subsidiaries, other than those in the ordinary course of business, which are material with respect to the Company and its Subsidiaries considered as one enterprise, and (C) there has been no dividend or distribution of any kind declared, paid or made by the Company on any class of its capital stock.

(f) Good Standing of the Company. The Company has been duly organized and is validly existing as a corporation in good standing under the laws of the jurisdiction of its organization and has corporate power and authority to own, lease and operate its properties and to conduct its business as described in the Prospectus and to enter into and perform its obligations under this Agreement; and the Company is duly qualified as a foreign corporation to transact business and is in good standing in each other jurisdiction in which such qualification is required, whether by reason of the ownership or leasing of property or the conduct of business, except where the failure so to qualify or to be in good standing would not result in a Material Adverse Effect.

(g) Good Standing of Subsidiaries. Each subsidiary listed on Schedule 1 hereto (each a “Subsidiary” and, collectively, the “Subsidiaries”) has been duly organized and is validly existing as a corporation in good standing under the laws of the jurisdiction of its incorporation, has corporate power and authority to own, lease and operate its properties and to conduct its business as described in the Prospectus and is duly qualified as a foreign corporation to transact business and is in good standing in each jurisdiction in which such qualification is required, whether by reason of the ownership or leasing of property or the conduct of business, except where the failure so to qualify or to be in good standing would not result in a Material Adverse Effect; except as would not result in a Material Adverse Effect, all of the issued and outstanding capital stock of each such Subsidiary has been duly authorized and validly issued, is fully paid and non-assessable and is owned by the Company, directly or through subsidiaries, free and clear of any security interest, mortgage, pledge, lien, encumbrance, adverse claim or equity; none of the outstanding shares of capital stock of any Subsidiary was issued in violation of the preemptive or similar rights of any securityholder of such Subsidiary except where such failure would not result in a Material Adverse Effect. The only subsidiaries, direct and indirect, of the Company are the subsidiaries listed on Schedule 1 hereto.

(h) Capitalization. The shares of issued and outstanding Common Stock have been duly authorized and validly issued and are fully paid and non-assessable; none of the outstanding shares of capital stock was issued in violation of the preemptive or other similar rights of any securityholder of the Company. The Company’s Common Stock has been registered pursuant to Section 12(b) of the 1934 Act and is listed on the Nasdaq Global Market (“Nasdaq”), and the Company has not received any notification that the Commission or the Nasdaq is contemplating terminating such registration or listing.

(i) Authorization of Agreements. This Agreement and any Terms Agreement have been duly authorized by the Company. This Agreement has been, and any Terms Agreement will be, executed and delivered by the Company.

(j) Authorization and Description of Shares. The Shares have been duly authorized and reserved for issuance and sale pursuant to this Agreement and, when issued and delivered by the Company pursuant to this Agreement or any Terms Agreement against payment of the consideration set forth herein or therein, will be validly issued and fully paid and non-assessable; the Common Stock conforms to all statements relating thereto contained in the Prospectus and such description conforms to the rights set forth in the instruments defining the same; no holder of the Shares will be subject to personal liability by reason of being such a holder; and the issuance of the Shares is not subject to the preemptive or other similar rights of any securityholder of the Company.

(k) Absence of Defaults and Conflicts. (a) Neither the Company nor any of its Subsidiaries is in violation of its charter or by-laws or in default in the performance or observance of any obligation, agreement, covenant or condition contained in any contract, indenture, mortgage, deed of trust, loan or credit agreement, note, lease or other agreement or instrument to which the Company or any of its Subsidiaries is a party or by which it or any of them may be bound, or to which any of the property or assets of the Company or any Subsidiary is subject (collectively, “Agreements and Instruments”) except for such violations and defaults as would not have a Material Adverse Effect; (b)(i) and the execution, delivery and performance of this Agreement or of any Terms Agreement and the consummation of the transactions contemplated herein or in any Terms Agreement and in the Registration Statement (including the issuance and sale of the Shares and the use of the proceeds from the sale of the Shares as described in the Prospectus under the caption “Use of Proceeds”) and compliance by the Company with its

obligations hereunder have been duly authorized by all necessary corporate action and do not and will not, whether with or without the giving of notice or passage of time or both, conflict with or constitute a breach of, or default or Repayment Event (as defined below) under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company or any Subsidiary pursuant to, the Agreements and Instruments, (ii) nor will such action result in any violation of the provisions of the charter or by-laws of the Company or any Subsidiary, (iii) nor will such action result in any violation of any applicable law, statute, rule, regulation, judgment, order, writ or decree of any government, government instrumentality or court, domestic or foreign, including the U.S. Food and Drug Administration (the “FDA”), having jurisdiction over the Company or any Subsidiary or any of their assets, properties or operations (each, a “Governmental Entity”). As used herein, a “Repayment Event” means any event or condition which gives the holder of any note, debenture or other evidence of indebtedness (or any person acting on such holder’s behalf) the right to require the repurchase, redemption or repayment of all or a portion of such indebtedness by the Company or any Subsidiary.

(l) Absence of Labor Dispute. Except where the failure thereof would not result in a Material Adverse Effect, no labor dispute with the employees of the Company or any Subsidiary exists or, to the knowledge of the Company, is imminent.

(m) Absence of Proceedings. There is no action, suit, proceeding, inquiry or investigation before or brought by any court or governmental agency or body, domestic or foreign, now pending, or, to the knowledge of the Company, threatened, against or affecting the Company or any Subsidiary, which would reasonably be expected to result in a Material Adverse Effect, or which might materially and adversely affect the consummation of the transactions contemplated in this Agreement or any Terms Agreement or the performance by the Company of its obligations hereunder or thereunder.

(n) Accuracy of Exhibits. There are no contracts or documents which are required to be described in the Registration Statement or the Prospectus or the documents incorporated by reference therein or to be filed as exhibits thereto which have not been so described and filed as required.

(o) Possession of Intellectual Property. Except where the failure thereof would not reasonably be expected to result in a Material Adverse Effect, (i) the Company and its Subsidiaries own or possess, or can acquire on reasonable terms, adequate patents, patent rights, licenses, inventions, copyrights, know-how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures), trademarks, service marks, trade names or other intellectual property (collectively, “Intellectual Property”) necessary to carry on the business now operated by them, and (ii) neither the Company nor any of its Subsidiaries has received any notice or is otherwise aware of any infringement of or conflict with asserted rights of others with respect to any Intellectual Property or of any facts or circumstances which would render any Intellectual Property invalid or inadequate to protect the interest of the Company or any of its Subsidiaries therein.

(p) Health Care Laws and Compliance. The Company and each of its subsidiaries has operated and currently is in compliance in all material respects with all applicable Health Care Laws (defined herein), except where such non-compliance would not result, singly or in the aggregate, in a Material Adverse Effect; (B) have not received any FDA Form 483, notice of adverse finding, warning letter, untitled letter or other correspondence or notice from any Governmental Entity alleging or asserting noncompliance with any Health Care Laws or any licenses, certificates, approvals, clearances, authorizations, registrations, permits and supplements or amendments thereto required by any such Health Care Laws (“Authorizations”) which has not been remedied by the Company and its subsidiaries or except where such noncompliance if not remedied would not, singly or in the aggregate, result in a Material Adverse Effect; (C) possess all Authorizations and such Authorizations are valid and in full force and effect and the Company is 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 Entity or third party alleging that any product operation or activity is in violation of any Health Care Laws or Authorizations, in each case, that, if determined adversely to the Company or any of its subsidiaries, would, individually or in the aggregate, have or reasonably be expected to have a Material Adverse Effect; (E) have not received notice that any Governmental Entity has taken, is taking or intends to take action to limit, suspend, modify or revoke any Authorizations, in each case, that, if determined adversely to the Company or any of its subsidiaries, would, individually or in the aggregate, have or reasonably be expected to have a Material Adverse Effect; and (F) have filed, obtained, maintained or submitted all reports, documents, forms, notices, applications,

records, claims, submissions and supplements or amendments as required by any Health Care 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), except where the failure to file, obtain, maintain or submit such documents would not result in a Material Adverse Effect. For purposes of this Agreement, "Health Care Laws" shall mean the federal Anti-kickback Statute (42 U.S.C. § 1320a-7b(b)), the Physician Payment Sunshine Act (42 U.S.C. § 1320a-7h), the civil False Claims Act (31 U.S.C. §§ 3729 et seq.), the criminal False Claims Act (42 U.S.C. § 1320a-7b(a)), all criminal laws relating to health care fraud and abuse, including but not limited to 18 U.S.C. Sections 286 and 287, and the health care fraud criminal provisions, including 18 U.S.C. § 1347, under the Health Insurance Portability and Accountability Act of 1996 (42 U.S.C. § 1320d et seq.) ("HIPAA"), the exclusion laws (42 U.S.C. § 1320a-7), the civil monetary penalties law (42 U.S.C. § 1320a-7a), HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act (42 U.S.C. §§ 17921 et seq.), the Federal Food, Drug, and Cosmetic Act (21 U.S.C. §§ 301 et seq.), Medicare (Title XVIII of the Social Security Act), Medicaid (Title XIX of the Social Security Act), the regulations promulgated pursuant to such laws, and any other similar local, state or federal law and regulations.

(q) Clinical Studies. The studies, tests and preclinical and clinical trials conducted by or on behalf of the Company and its subsidiaries that are material to the Company and its subsidiaries taken as a whole were and, if still pending, are, in all material respects, being conducted in accordance with experimental protocols, procedures and controls pursuant to accepted professional and scientific standards and all Health Care Laws and Authorizations, including, without limitation, the Federal Food, Drug and Cosmetic Act and its applicable implementing regulations; the descriptions of the results of such studies, tests and trials contained in the Registration Statement, the General Disclosure Package and the Prospectus are accurate and complete 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 General 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 General 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 Entity requiring the termination, suspension or material modification of any studies, tests or preclinical or clinical trials conducted or being conducted by or on behalf of the Company or any of its subsidiaries that are material to the Company and its subsidiaries taken as a whole.

(r) Absence of Further Requirements. No filing with, or authorization, approval, consent, license, order, registration, qualification or decree of, any court or governmental authority or agency is necessary or required for the performance by the Company of its obligations hereunder, in connection with the offering, issuance or sale of the Shares hereunder or the consummation of the transactions contemplated by this Agreement or any Terms Agreement, except such as have been already obtained or as may be required under the 1933 Act or the 1933 Act Regulations or state securities laws or by the rules of the Nasdaq or the Financial Industry Regulatory Authority, Inc. ("FINRA").

(s) Absence of Manipulation. Neither the Company nor any affiliate of the Company has taken, nor will the Company take, directly or indirectly, any action which is designed to or which has constituted or which would be expected to cause or result in stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Shares.

(t) Possession of Licenses and Permits. The Company and its Subsidiaries possess such permits, licenses, approvals, consents and other authorizations (collectively, "Governmental Licenses") issued by the appropriate federal, state, local or foreign regulatory agencies or bodies necessary to conduct the business now operated by them except for such Government Licenses which failure to possess would not be reasonably likely to result in a Material Adverse Effect; the Company and its Subsidiaries are in compliance in all material respects with the terms and conditions of all such Governmental Licenses; all of the Governmental Licenses are valid and in full force and effect; and neither the Company nor any of its Subsidiaries has received any notice of proceedings relating to the revocation or modification of any such Governmental Licenses that, if determined adversely to the Company or any of its subsidiaries, would, individually or in the aggregate, have or reasonably be expected to have a Material Adverse Effect.

(u) Title to Property. Except where the failure thereof would result in a Material Adverse Effect, to the Company's knowledge, (i) the Company and its Subsidiaries have good and marketable title to all real property owned by the Company and its Subsidiaries and good title to all other properties owned by them that are material to the business of the Company, in each case, free and clear of all mortgages, pledges, liens, security interests, claims, restrictions or encumbrances of any kind except such as do not, singly or in the aggregate, affect the value of such property and do not interfere with the use made and proposed to be made of such property by the Company or any of its Subsidiaries; and (ii) all of the leases and subleases material to the business of the Company and its Subsidiaries, considered as one enterprise, and under which the Company or any of its Subsidiaries holds properties described in the Prospectus, are in full force and effect, and neither the Company nor any Subsidiary has any notice of any material claim of any sort that has been asserted by anyone adverse to the rights of the Company or any Subsidiary under any of the leases or subleases mentioned above, or affecting or questioning the rights of the Company or such Subsidiary to the continued possession of the leased or subleased premises under any such lease or sublease.

(v) Investment Company Act. The Company is not required, and upon the issuance and sale of the Shares as herein contemplated and the application of the net proceeds therefrom as described in the Prospectus will not be required, to register as an "investment company" within the meaning of the Investment Company Act of 1940, as amended.

(w) Environmental Laws. Except as would not reasonably be expected to, singly or in the aggregate, result in a Material Adverse Effect, (A) neither the Company nor any of its Subsidiaries is in violation of any federal, state, local or foreign statute, law, rule, regulation, ordinance, code, policy or rule of common law or any judicial or administrative interpretation thereof, including any judicial or administrative order, consent, decree or judgment, relating to pollution or protection of human health, the environment (including, without limitation, ambient air, surface water, groundwater, land surface or subsurface strata) or wildlife, including, without limitation, laws and regulations relating to the release or threatened release of chemicals, pollutants, contaminants, wastes, toxic substances, hazardous substances, petroleum or petroleum products, asbestos containing materials or mold (collectively, "Hazardous Materials") or to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Hazardous Materials (collectively, "Environmental Laws"), (B) the Company and its Subsidiaries have all permits, authorizations and approvals required under any applicable Environmental Laws and are each in compliance with their requirements, (C) there are no pending or, to the Company's knowledge, threatened administrative, regulatory or judicial actions, suits, demands, demand letters, claims, liens, notices of noncompliance or violation, investigation or proceedings relating to any Environmental Law against the Company or any of its Subsidiaries and (D) there are no events or circumstances of which the Company is aware that would reasonably be expected to form the basis of an order for clean-up or remediation, or an action, suit or proceeding by any private party or governmental body or agency, against or affecting the Company or any of its Subsidiaries relating to Hazardous Materials or any Environmental Laws.

(x) Registration Rights. There are no persons with registration rights or other similar rights to have any securities registered pursuant to the Registration Statement or included in the offering contemplated by this Agreement, except for such rights as have been duly waived.

(y) Accounting Controls and Disclosure Controls. The Company and each of its Subsidiaries maintain a system of internal accounting controls sufficient to provide reasonable assurances that (A) transactions are executed in accordance with management's general or specific authorization; (B) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain accountability for assets; (C) access to assets is permitted only in accordance with management's general or specific authorization; and (D) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. Since the end of the Company's most recent audited fiscal year, the Company is not aware of any (1) material weakness in the Company's internal control over financial reporting (whether or not remediated) or (2) 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 and its consolidated Subsidiaries employ disclosure controls and procedures that are designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the 1934 Act is recorded, processed, summarized and reported, within the time periods specified in the

Commission's rules and forms, and is accumulated and communicated to the Company's management, including its principal executive officer or officers and principal financial officer or officers, as appropriate, to allow timely decisions regarding disclosure.

(z) S-3 Eligibility. (A)(i) At the time of filing the Registration Statement and (ii) at the time of the most recent amendment thereto for the purposes of complying with Section 10(a)(3) of the 1933 Act (whether such amendment was by post-effective amendment, incorporated report filed pursuant to Section 13 or 15(d) of the 1934 Act or form of prospectus), the Company met the then applicable requirements for use of Form S-3 under the 1933 Act and (B) at the earliest time after the filing of the Registration Statement that the Company or another offering participant made a bona fide offer (within the meaning of Rule 164(h)(2) under the 1933 Act) of the Shares, the Company was not an "ineligible issuer" as defined in Rule 405 under the 1933 Act.

(aa) No Commissions. Neither the Company nor any of its Subsidiaries is a party to any contract, agreement or understanding with any person (other than as contemplated by this Agreement or any Terms Agreement) that would give rise to a valid claim against the Company or any of its Subsidiaries or the Agent for a brokerage commission, finder's fee or like payment in connection with the offering and sale of the Shares.

(bb) Deemed Representation. Any certificate signed by any officer of the Company delivered to the Agent or to counsel for the Agent pursuant to or in connection with this Agreement or any Terms Agreement shall be deemed a representation and warranty by the Company to the Agent as to the matters covered thereby as of the date or dates indicated in such certificate.

(cc) Compliance with the Sarbanes-Oxley Act. There is and has been no failure on the part of the Company or any of the Company's directors or officers, in their capacities as such, to comply in all material respects with any provision of the Sarbanes-Oxley Act of 2002 and the rules and regulations promulgated in connection therewith (the "Sarbanes-Oxley Act"), including Section 402 related to loans and Sections 302 and 906 related to certifications

(dd) Payment of Taxes. All United States federal income tax returns of the Company and its Subsidiaries required by law to be filed have been filed and all taxes shown by such returns or otherwise assessed, which are due and payable, have been paid, except assessments against which appeals have been or will be promptly taken and as to which adequate reserves have been provided and except where the failure to do so would not reasonably be expected to have a Material Adverse Effect. The United States federal income tax returns of the Company through the fiscal year ended December 31, 2016 have been settled and no assessment in connection therewith has been made against the Company. The Company and its Subsidiaries have filed all other tax returns that are required to have been filed by them pursuant to applicable foreign, state, local or other law and have paid all taxes due pursuant to such returns or pursuant to any assessment received by the Company and its Subsidiaries, except for such taxes, if any, as are being contested in good faith and as to which adequate reserves have been provided and except where the failure to do so would reasonably be expected to have a Material Adverse Effect.

(ee) Insurance. The Company and its Subsidiaries carry or are entitled to the benefits of insurance, with financially sound and reputable institutions with policies, in such amounts and covering such risks as the Company considers adequate, and all such insurance is in full force and effect. The Company has no reason to believe that it or any Subsidiary will not be able (A) to renew its existing insurance coverage as and when such policies expire or (B) to obtain comparable coverage from similar institutions as may be necessary or appropriate to conduct its business as now conducted and at a cost that would not result in a Material Adverse Effect. During the past three years, neither of the Company nor any Subsidiary has been denied any insurance coverage material to the Company which it has sought or for which it has applied.

(ff) Statistical and Market-Related Data. Any statistical and market-related data included in the Registration Statement, the General Disclosure Package and the Prospectus are based on or derived from sources that the Company believes to be reliable and accurate, and, where required, the Company's good faith estimates that are made on the basis of such data from such sources.

(gg) Foreign Corrupt Practices Act. Neither the Company nor, to the knowledge of the Company, any director, officer, agent, employee, affiliate or other person acting on behalf of the Company or any of its

Subsidiaries is aware of or has taken any action, directly or indirectly, that would result in a violation by such persons of the Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (the “FCPA”), including, without limitation, making use of the mails or any means or instrumentality of interstate commerce corruptly in furtherance of an offer, payment, promise to pay or authorization of the payment of any money, or other property, gift, promise to give, or authorization of the giving of anything of value to any “foreign official” (as such term is defined in the FCPA) or any foreign political party or official thereof or any candidate for foreign political office, in contravention of the FCPA and the Company and, to the knowledge of the Company, its affiliates have conducted their businesses in compliance with the FCPA and have instituted and maintain policies and procedures designed to ensure, and which are reasonably expected to continue to ensure, continued compliance therewith.

(hh) Money Laundering Laws. The operations of the Company are and have been conducted at all times in material compliance with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all applicable jurisdictions, the rules and applicable regulations thereunder 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 with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(ii) OFAC. Neither the Company nor, to the knowledge of the Company, any director, officer, agent, employee, affiliate or person acting on behalf of the Company is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department (“OFAC”); and the Company will not directly or indirectly use the proceeds of this offering, or lend, contribute or otherwise make available such proceeds to any Subsidiary, joint venture partner or other person or entity, for the purpose of financing the activities of any person whom the Company has knowledge is currently subject to any U.S. sanctions administered by OFAC.

Section 2. Sale and Delivery of Shares.

(a) Subject to the terms and conditions set forth herein, the Company agrees to issue and sell exclusively through the Agent acting as sales agent or directly to the Agent acting as principal from time to time, and the Agent agrees to use its commercially reasonable efforts to sell as sales agent for the Company, the Shares. Sales of the Shares, if any, may be made through the Agent acting as sales agent or directly to the Agent acting as principal. Anything to the contrary notwithstanding in this Agreement, without the Company’s prior written consent (which may include explicit authorization in a Terms Agreement), the Agent may not place shares by any method other than those deemed to be “at the market offerings” as defined in Rule 415 of the 1933 Act. The Agent shall effect any sales of Shares in accordance with applicable state and federal laws, rules and regulations and the rules of the Nasdaq and otherwise in accordance with the terms of the applicable Terms Agreement. Nothing contained herein restricts, nor may be deemed to restrict, the Company from undertaking another offering of its securities pursuant to a separate registration under the 1933 Act (or any exemption from such registration), or another offering under the Registration Statement, provided the Company complies with Section 3(p) hereof.

(b) Subject to the applicable Terms Agreement or instructions to sell shares delivered pursuant to this Section 2(b), the Shares to be sold pursuant to this Agreement are to be sold on a daily basis or otherwise as shall be agreed to by the Company and the Agent on that trading day (other than a day on which the Nasdaq is scheduled to close prior to its regular weekday closing time, each, a “Trading Day”) that the Company has satisfied its obligations under Section 6 of this Agreement and that the Company has instructed the Agent to make such sales. For the avoidance of doubt, the foregoing limitation shall not apply to sales solely to employees or security holders of the Company or its Subsidiaries, or to a trustee or other person acquiring such securities for the accounts of such persons in which Stifel Nicolaus is acting for the Company in a capacity other than as Agent under this Agreement. On any Trading Day, the Company may instruct the Agent by telephone (confirmed promptly by telecopy or email, which confirmation will be promptly acknowledged by the Agent) as to the maximum aggregate dollar value or number of Shares to be sold by the Agent on such day (in any event not in excess of the number available for issuance under the Prospectus and the currently effective Registration Statement) and the minimum price per Share at which such Shares may be sold (each such instruction and subsequent confirmation, a “Placement Notice”). Subject to the terms and conditions hereof, the Agent shall use its commercially reasonable efforts to sell

as sales agent all of the Shares so designated by the Company and in the manner and on the terms so designated in writing by the Company. The Company and the Agent each acknowledge and agree that (A) there can be no assurance that the Agent will be successful in selling the Shares, (B) the Agent will incur no liability or obligation to the Company or any other person or entity if they do not sell Shares for any reason other than a failure by the Agent to use its commercially reasonable efforts consistent with its normal trading and sales practices and applicable law and regulations to sell such Shares as required by this Agreement, and (C) the Agent shall be under no obligation to purchase Shares on a principal basis except as otherwise specifically agreed by each of the Agent and the Company pursuant to a Terms Agreement. In the event of a conflict between the terms of this Agreement and the terms of a Terms Agreement, the terms of such Terms Agreement will control.

(c) Notwithstanding the foregoing, the Company shall not authorize the issuance and sale of, and the Agent as sales agent shall not be obligated to use its commercially reasonable efforts to sell, any Shares (i) at a price lower than the minimum price therefor authorized from time to time, or (ii) in a number in excess of the number or maximum aggregate dollar value of Shares, in each case, authorized from time to time by the Company's board of directors, or a duly authorized committee thereof, and notified to the Agent in writing. In addition, the Company may, upon notice to the Agent, suspend the offering of the Shares or the Agent may, upon notice to the Company, suspend the offering of the Shares with respect to which the Agent is acting as sales agent for any reason and at any time if receipt of such notice is actually acknowledged by any of the individuals to whom the notice is sent; provided, however, that such suspension or termination shall not affect or impair the parties' respective obligations with respect to the Shares sold hereunder prior to the giving of such notice. Any notice given pursuant to the preceding sentence may be given by telephone (confirmed promptly by teletype or email, which confirmation will be promptly acknowledged).

(d) The gross sales price per share of any Shares sold pursuant to this Agreement by the Agent acting as sales agent of the Company shall be the market price prevailing at the time of sale for shares of the Company's Common Stock sold by the Agent on the Nasdaq or otherwise, at prices relating to prevailing market prices or at negotiated prices. The compensation payable to the Agent for sales of Shares with respect to which the Agent acts as sales agent shall be up to 3.0% of the gross sales price of the Shares for amounts of Shares sold pursuant to this Agreement. The Company may sell Shares to the Agent, acting as principal, at a price agreed upon with the Agent at the relevant Applicable Time and pursuant to a separate Terms Agreement. The remaining proceeds, after further deduction for any transaction fees imposed by any governmental, regulatory or self-regulatory organization in respect of such sales, shall constitute the net proceeds to the Company for such Shares (the "Net Proceeds"). The Agent shall notify the Company as promptly as practicable if any deduction referenced in the preceding sentence will be required.

(e) If acting as a sales agent hereunder, the Agent shall provide written confirmation to the Company promptly following the close of trading on the Nasdaq, each day in which Shares are sold under this Agreement setting forth the number of Shares sold on such day, the aggregate gross sales proceeds of the Shares, the Net Proceeds to the Company and the compensation payable by the Company to such Agent with respect to such sales.

(f) Under no circumstances shall the aggregate offering price or number, as the case may be, of Shares sold pursuant to this Agreement and any Terms Agreement exceed the aggregate offering price or number, as the case may be, of shares of Common Stock (i) set forth in the preamble paragraph of this Agreement, (ii) available for issuance under the Prospectus and the then currently effective Registration Statement or (iii) authorized from time to time to be issued and sold under this Agreement or any Terms Agreement by the Company's board of directors, or a duly authorized committee thereof, and notified to the Agent in writing. In addition, under no circumstances shall any Shares with respect to which the Agent acts as sales agent be sold at a price lower than the minimum price therefor authorized from time to time by the Company's board of directors, or a duly authorized committee thereof, and notified to the Agent in writing.

(g) Settlement for sales of Shares pursuant to this Section 2 will occur on the second business day that is also a Trading Day following the trade date on which such sales are made, unless another date shall be agreed to by the Company and the Agent (each such day, a "Settlement Date"). On each Settlement Date, the Shares sold through the Agent for settlement on such date shall be delivered by the Company to the Agent against payment of the Net Proceeds from the sale of such Shares. Settlement for all Shares shall be effected by book-entry delivery

of Shares to the Agent's account at The Depository Trust Company against payments by the Agent of the Net Proceeds from the sale of such Shares in same day funds delivered to an account designated by the Company. If the Company shall default on its obligation to deliver Shares on any Settlement Date, the Company shall, in addition to any indemnification obligation pursuant to Section 7, pay the Agent any commission to which it would otherwise be entitled absent such default.

(h) Notwithstanding any other provision of this Agreement, the Company and the Agent agree that no sales of Shares shall take place, and the Company shall not request the sale of any Shares that would be sold, and the Agent shall not be obligated to sell, during any period in which the Company is, or would reasonably be deemed to be, in possession of material non-public information.

(i) Any obligation of the Agent to use its commercially reasonable efforts to sell the Shares pursuant to this Agreement on behalf of the Company as sales agent shall be subject to the continuing accuracy of the representations and warranties of the Company herein, to the performance by the Company of its obligations hereunder and to the continuing satisfaction of the additional conditions specified in Section 6 of this Agreement.

Section 3. Covenants. The Company agrees with the Agent:

(a) During any period when the delivery of a prospectus is required in connection with the offering or sale of Shares pursuant to this Agreement (whether physically or through compliance with Rule 153 or 172, or in lieu thereof, a notice referred to in Rule 173(a) under the 1933 Act), (i) to make no further amendment or any supplement to the Registration Statement or the Prospectus (other than an amendment or supplement relating to an offering of the Company's securities which is unrelated to the offering of the Shares hereunder) prior to any Settlement Date which shall be disapproved by the Agent promptly after reasonable notice thereof and to advise the Agent, promptly after it receives notice thereof, of the time when any amendment to the Registration Statement has been filed or becomes effective or any amendment or supplement to the Prospectus (other than an amendment or supplement relating to an offering of the Company's securities which is unrelated to the offering of the Shares hereunder) has been filed and to furnish the Agent with copies thereof, (ii) to file promptly all other material required to be filed by the Company with the Commission pursuant to Rule 433(d) under the 1933 Act, (iii) to file promptly all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Section 13(a), 13(c), 14 or 15(d) of the 1934 Act, (iv) to advise the Agent, promptly after it receives notice thereof, of the issuance by the Commission of any stop order or of any order preventing or suspending the use of the Prospectus or other prospectus in respect of the Shares, of the suspension of the qualification of the Shares for offering or sale in any jurisdiction, of the initiation or threatening of any proceeding for any such purpose, or of any request by the Commission for the amending or supplementing of the form of the Registration Statement or the Prospectus or for additional information, and (v) in the event of the issuance of any such stop order or of any such order preventing or suspending the use of the Prospectus in respect of the Shares or suspending any such qualification, to promptly use its commercially reasonable efforts to obtain the withdrawal of such order; and in the event of any such issuance of a notice of objection, promptly to take such reasonable steps as may be necessary to permit offers and sales of the Shares by the Agent, which may include, without limitation, amending the Registration Statement or filing a new registration statement, at the Company's expense (references herein to the Registration Statement shall include any such amendment or new registration statement). Notwithstanding the foregoing, the Company shall not be obligated to furnish copies of any report or statement filed with the Commission to the extent it is available on the Commission's Electronic Data-Gathering, Analysis, and Retrieval System ("EDGAR").

(b) Promptly from time to time to take such action as the Agent may reasonably request to qualify the Shares for offering and sale under the securities laws of such jurisdictions as the Agent may request and to comply with such laws so as to permit the continuance of sales and dealings therein in such jurisdictions for as long as may be necessary to complete the sale of the Shares, provided that in connection therewith the Company shall not be required to qualify as a foreign corporation or to file a general consent to service of process in any jurisdiction; and to promptly advise the Agent of the receipt by the Company of any notification with respect to the suspension of the qualification of the Shares for offer or sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose.

(c) During any period when the delivery of a prospectus is required (whether physically or through compliance with Rules 153 or 172, or in lieu thereof, a notice referred to in Rule 173(a) under the 1933 Act) in connection with the offering or sale of Shares, the Company will make available to the Agent, as soon as practicable after the execution of this Agreement, and thereafter from time to time furnish to the Agent, copies of the most recent Prospectus in such quantities and at such locations as the Agent may reasonably request for the purposes contemplated by the 1933 Act. During any period when the delivery of a prospectus is required (whether physically or through compliance with Rules 153 or 172, or in lieu thereof, a notice referred to in Rule 173(a) under the 1933 Act) in connection with the offering or sale of Shares, and if at such time any event shall have occurred as a result of which the Prospectus as then amended or supplemented would include an untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made when such Prospectus is delivered, not misleading, or, if for any other reason it shall be necessary during such same period to amend or supplement the Prospectus or to file under the 1934 Act any document incorporated by reference in the Prospectus in order to comply with the 1933 Act or the 1934 Act, to notify the Agent and to file such document and to prepare and furnish without charge to the Agent as many written and electronic copies as the Agent may from time to time reasonably request of an amended Prospectus or a supplement to the Prospectus which will correct such statement or omission or effect such compliance. Notwithstanding the foregoing, the Company shall not be required to furnish any document to the extent such document is available on EDGAR.

(d) To make generally available to its securityholders as soon as practicable, but in any event not later than sixteen months after the effective date of the Registration Statement (as defined in Rule 158(c) under the 1933 Act), an earnings statement of the Company and its Subsidiaries (which need not be audited) complying with Section 11(a) of the 1933 Act and the rules and regulations of the Commission thereunder (including, at the option of the Company, Rule 158).

(e) To pay the required Commission filing fees relating to the Shares within the time required by Rule 456(b)(1) under the 1933 Act without regard to the proviso therein and otherwise in accordance with Rules 456(b) and 457(r) under the 1933 Act.

(f) To use the Net Proceeds received by it from the sale of the Shares pursuant to this Agreement and any Terms Agreement in the manner specified in the General Disclosure Package.

(g) In connection with the offering and sale of the Shares, the Company will file with the Nasdaq all documents and notices, and make all certifications, required by the Nasdaq of companies that have securities that are listed or quoted on the Nasdaq and will maintain such listings or quotations.

(h) To not take, directly or indirectly, and to use commercially reasonable efforts to cause its affiliates (as defined in Rule 405 of the 1933 Act Regulations) to refrain from taking, any action designed to cause or result in, or that has constituted or might reasonably be expected to constitute, under the 1934 Act or otherwise, the stabilization or manipulation of the price of any securities of the Company to facilitate the sale or resale of the Shares.

(i) In each Annual Report on Form 10-K or Quarterly Report on Form 10-Q filed by the Company in respect of any quarter in which sales of Shares were made by or through the Agent under this Agreement or any Terms Agreement (each date on which any such document is filed, and any date on which an amendment to any such document is filed, a "Company Periodic Report Date"), the Company shall set forth with regard to such quarter the approximate number of Shares sold through the Agent under this Agreement or any Terms Agreement and the Net Proceeds received by the Company with respect to sales of Shares pursuant to this Agreement or any Terms Agreement.

(j) Upon commencement of the offering of Shares under this Agreement (the "Commencement Date") and each time the Shares are delivered to the Agent as principal on a Settlement Date and promptly after each (i) date the Registration Statement or the Prospectus shall be amended or supplemented (other than (1) by an amendment or supplement providing solely for the determination of the terms of the Shares, (2) in connection with the filing of a prospectus supplement that contains solely the information set forth in Section 3(i), (3) in connection

with the filing of any current reports on Form 8-K (other than any current reports on Form 8-K which contain financial statements, supporting schedules or other financial data, including any current report on Form 8-K under Item 2.02 of such form that is considered "filed" under the 1934 Act) or (4) by a prospectus supplement relating to the offering of other securities (including, without limitation, other shares of Common Stock)) (each such date, a "Registration Statement Amendment Date") and (ii) Company Periodic Report Date (together with each Registration Statement Amendment Date, a "Representation Date"), the Company will furnish or cause to be furnished forthwith to the Agent a certificate dated the date of effectiveness of such amendment or the date of filing with the Commission of such supplement or other document, as the case may be, in a form reasonably satisfactory to the Agent to the effect that the statements contained in the certificate referred to in Section 6(e) of this Agreement which were last furnished to the Agent are true and correct at the time of such amendment, supplement or filing, as the case may be, as though made at and as of such time (except that such statements shall be deemed to relate to the Registration Statement, the General Disclosure Package and the Prospectus as amended and supplemented to such time) or, in lieu of such certificate, a certificate of the same tenor as the certificate referred to in said Section 6(e), but modified as necessary to relate to the Registration Statement and the Prospectus as amended and supplemented, or to the document incorporated by reference into the Prospectus, to the time of delivery of such certificate. As used in this paragraph, to the extent there shall be an Applicable Time on or following the date referred to in clause (i) or (ii) above, promptly shall be deemed to be on or prior to the next succeeding Applicable Time. The requirement to provide a certificate under this Section 3(j) shall be waived for any Representation Date occurring at a time at which no Placement Notice is pending, which waiver shall continue until the earlier to occur of the date the Company delivers a Placement Notice hereunder (which for such calendar quarter shall be considered a Representation Date) and the next occurring Representation Date. Notwithstanding the foregoing, if the Company subsequently decides to sell Placement Shares following a Representation Date when the Company relied on such waiver and did not provide Agent with a certificate under this Section 3(j), then before the Company delivers the Placement Notice or Agent sells any Placement Shares, the Company shall provide Agent with a certificate in form and substance reasonably satisfactory to the Agent, dated the date of the Placement Notice.

(k) On the Commencement Date and each time the Shares are delivered to the Agent as principal on a Settlement Date pursuant to a Terms Agreement, and promptly after each Representation Date for which no waiver under Section 3(j) is applicable, the Company will furnish or cause to be furnished to the Agent and to counsel to the Agent the written opinion and letter of each Company Counsel or other counsel reasonably satisfactory to the Agent, dated the Commencement Date or such Settlement Date or Representation Date, as the case may be, in a form and substance reasonably satisfactory to the Agent and its counsel, of the same tenor as the opinions and letters referred to in Section 6(c) of this Agreement, but modified as necessary to relate to the Registration Statement, the General Disclosure Package and the Prospectus as amended and supplemented, or to the document incorporated by reference into the Prospectus, to the time of delivery of such opinion and letter or, in lieu of such opinion and letter, counsel last furnishing such letter to the Agent shall furnish such Agent with a letter substantially to the effect that the Agent may rely on such last opinion and letter to the same extent as though each were dated the date of such letter authorizing reliance (except that statements in such last letter shall be deemed to relate to the Registration Statement and the Prospectus as amended and supplemented to the time of delivery of such letter authorizing reliance).

(l) On the Commencement Date and each time the Shares are delivered to the Agent as principal on a Settlement Date pursuant to a Terms Agreement, and promptly after each Representation Date for which no waiver under Section 3(j) is applicable, the Company will cause Deloitte & Touche LLP, or other independent accountants reasonably satisfactory to the Agent, to furnish to the Agent a letter, dated the date of effectiveness of such amendment or the date of filing of such supplement or other document with the Commission, as the case may be, in form reasonably satisfactory to the Agent and its counsel, of the same tenor as the letter referred to in Section 6(d) hereof, but modified as necessary to relate to the Registration Statement, the General Disclosure Package and the Prospectus, as amended and supplemented, or to the document incorporated by reference into the Prospectus, to the date of such letter.

(m) The Company consents to Stifel Nicolaus trading in the Company's Common Stock for Stifel Nicolaus' own account and for the account of its clients at the same time as sales of Shares occur pursuant to this Agreement or any Terms Agreement; provided that at all times the Agent is in compliance with Regulation M under the 1934 Act with respect to the Common Stock and provided that in no event shall the Agent trade the Common Stock for its or its affiliates' proprietary accounts.

(o) The Company will cooperate timely with any reasonable due diligence review conducted by the Agent or its counsel from time to time in connection with the transactions contemplated hereby or in any Terms Agreement, including, without limitation, and upon reasonable notice providing information and making available documents and appropriate corporate officers, during regular business hours and at the Company's principal offices, as the Agent may reasonably request.

(p) During the time when any Placement Notice is pending or any Terms Agreement is in effect, the Company will not, without giving the Agent at least three business days' prior written notice specifying the nature of the proposed sale and the date of such proposed sale and the Agent suspending activity under this program for such period of time as requested by the Company, (A) offer, pledge, announce the intention to sell, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant for the sale of, lend or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or securities convertible into or exchangeable or exercisable for or repayable with Common Stock, or file any registration statement under the 1933 Act with respect to any of the foregoing (other than a shelf registration statement under Rule 415 under the 1933 Act, a registration statement on Form S-8 or post-effective amendment to the Registration Statement) or (B) enter into any swap or other agreement or any transaction that transfers in whole or in part, directly or indirectly, any of the economic consequence of ownership of the Common Stock, or any securities convertible into or exchangeable or exercisable for or repayable with Common Stock, whether any such swap or transaction described in clause (A) or (B) above is to be settled by delivery of Common Stock or such other securities, in cash or otherwise. The foregoing sentence shall not apply to (x) any securities issuable upon the exercise or conversion of warrants, options, convertible securities or other rights either in existence prior to the date of this Agreement or issued thereafter in compliance with this Section 3(p), (y) the Shares to be offered and sold through the Agent pursuant to this Agreement or any Terms Agreement and (z) equity incentive awards approved by the board of directors of the Company or the compensation committee thereof or the issuance of Common Stock upon exercise thereof.

Section 4. Free Writing Prospectus.

(a) (i) The Company represents and agrees that without the prior consent of the Agent (which consent may not be unreasonably withheld, delayed or conditioned), it has not made and will not make any offer relating to the Shares that would constitute a "free writing prospectus" as defined in Rule 405 under the 1933 Act; and

(ii) the Agent represents and agrees that, without the prior consent of the Company (which consent may not be unreasonably withheld, delayed or conditioned), it has not made and will not make any offer relating to the Shares that would constitute a free writing prospectus required to be filed with the Commission.

(b) The Company has complied and will comply with the requirements of Rule 433 under the 1933 Act applicable to any Issuer Free Writing Prospectus (including any free writing prospectus identified in Section 4(a) hereof), including timely filing with the Commission or retention where required and legending.

Section 5. Payment of Expenses. The Company covenants and agrees with the Agent that the Company will pay or cause to be paid the following: (i) the fees, disbursements and expenses of the Company's counsel and accountants in connection with the registration of the Shares under the 1933 Act and all other expenses in connection with the preparation, printing and filing of the Registration Statement, the Basic Prospectus, Prospectus Supplement, any Issuer Free Writing Prospectus and the Prospectus and amendments and supplements thereto and the mailing and delivering of copies thereof to the Agent; (ii) the cost of printing or producing this Agreement or any Terms Agreement, any Blue Sky and Legal Investment Memoranda, closing documents (including any compilations thereof) and any other documents in connection with the offering, purchase, sale and delivery of the Shares; (iii) all expenses in connection with the qualification of the Shares for offering and sale under state securities laws as provided in Section 3(b) hereof, including the reasonable fees and disbursements of counsel for the Agent in connection with such qualification and in connection with the Blue Sky and Legal Investment Surveys; (iv) any filing fees incident to, and the reasonable fees and disbursements of counsel for the Agent in connection with, any required review by FINRA of the terms of the sale of the Shares; (v) all fees and expenses in connection with listing

or quoting the Shares on the Nasdaq; (vi) the cost of preparing the Shares; (vii) the costs and charges of any transfer agent or registrar or any dividend distribution agent; (viii) the reasonable fees and disbursements of counsel to the Agent in an aggregate amount not to exceed \$35,000 (which amount shall include all fees and disbursements of such counsel described in clauses (iii) and (iv) above); and (ix) all other costs and expenses incident to the performance of its obligations hereunder which are not otherwise specifically provided for in this Section. It is understood, however, that, except as provided in this Section, and Section 7 hereof, the Agent will pay all of its own costs and expenses, including the fees of its counsel, transfer taxes on resale of any of the Shares by it, and any advertising expenses connected with any offers it may make.

Section 6. Conditions of Agent's Obligation. The obligations of the Agent hereunder shall be subject, in its discretion, to the condition that all representations and warranties and other statements of the Company herein or in certificates of any officer of the Company delivered pursuant to the provisions hereof are true and correct as of the time of the execution of this Agreement, the date of any executed Terms Agreement and as of each Registration Statement Amendment Date, Company Periodic Report Date, Applicable Time and Settlement Date, to the condition that the Company shall have performed all of its obligations hereunder theretofore to be performed, and the following additional conditions:

(a) The Prospectus Supplement shall have been filed with the Commission pursuant to Rule 424(b) under the 1933 Act on or prior to the date hereof and in accordance with Section 3(a) hereof, any other material required to be filed by the Company pursuant to Rule 433(d) under the 1933 Act shall have been filed with the Commission within the applicable time periods prescribed for such filings by Rule 433; no stop order suspending the effectiveness of the Registration Statement or any part thereof shall have been issued and no proceeding for that purpose shall have been initiated or threatened by the Commission and no notice of objection of the Commission to the use of the form of the Registration Statement or any post-effective amendment thereto pursuant to Rule 401(g)(2) under the 1933 Act shall have been received; no stop order suspending or preventing the use of the Prospectus or any Issuer Free Writing Prospectus shall have been initiated or threatened by the Commission; and all requests for additional information on the part of the Commission shall have been complied with to the reasonable satisfaction of the Agent.

(b) On every date specified in Section 3(k) hereof and on such other dates as reasonably requested by Agent, Duane Morris LLP, counsel for the Agent, shall have furnished to the Agent such written opinion or opinions, dated as of such date, with respect to such matters as the Agent may reasonably request, and such counsel shall have received such papers and information as they may reasonably request to enable them to pass upon such matters.

(c) On every date specified in Section 3(k) hereof, Latham & Watkins LLP, counsel for the Company, shall have furnished to the Agent written opinion or opinions, dated as of such date, in form and substance reasonably satisfactory to the Agent (it being understood and agreed that, other than on the Commencement Date, such opinions shall consist of a customary "negative assurance" letter).

(d) At the dates specified in Section 3(l) hereof, the independent accountants of the Company who have certified the financial statements of the Company and its Subsidiaries included or incorporated by reference in the Registration Statement, the General Disclosure Package and the Prospectus shall have furnished to the Agent a letter dated as of the date of delivery thereof and addressed to the Agent in form and substance reasonably satisfactory to the Agent and its counsel, containing statements and information of the type ordinarily included in accountants' "comfort letters" to underwriters with respect to the financial statements of the Company and its Subsidiaries included or incorporated by reference in the Registration Statement, the General Disclosure Package and the Prospectus.

(e) On the Commencement Date, the Company will furnish or cause to be furnished promptly to the Agent a certificate of the Company signed by the secretary of the Company, dated as of the date thereof, to the effect that (A) each of the charter and bylaws of the Company (as the same may be amended and/or restated) is true and complete, has not been modified and is in full force and effect, and (B) the resolutions of the Company's board of directors relating to the sales of Shares pursuant to this Agreement are in full force and effect and have not been modified.

(f) On each date specified in Section 3(j), the Agent shall have received a certificate of executive officers of the Company, one of whom shall be the Chief Financial Officer, Chief Accounting Officer, Treasurer, or Executive Vice President in the area of capital markets and investments, dated as of the date thereof, to the effect that (A) there has been no Material Adverse Effect since the date as of which information is given in the General Disclosure Package and the Prospectus as then amended or supplemented, (B) the representations and warranties in Section 1 hereof are true and correct as of such date and (C) the Company has complied with all of the agreements entered into in connection with the transaction contemplated herein and satisfied all conditions on its part to be performed or satisfied hereunder.

(g) Since the date of the last audited financial statements then included or incorporated by reference in the General Disclosure Package and the Prospectus, no Material Adverse Effect shall have occurred.

(h) The Company shall have complied with the provisions of Section 3(c) hereof with respect to the timely furnishing of prospectuses.

(i) On such dates as reasonably requested by the Agent, the Company shall have conducted due diligence sessions, in form and substance reasonably satisfactory to the Agent.

(j) All filings with the Commission required by Rule 424 under the 1933 Act to have been filed by each Applicable Time or related Settlement Date shall have been made within the applicable time period prescribed for such filing by Rule 424 (without reliance on Rule 424(b)(8)).

(k) The Shares shall have received approval for quotation on the Nasdaq prior to the first Settlement Date.

(l) Prior to any Settlement Date, the Company shall have furnished to the Agent such further information, documents or certificates as the Agent may reasonably request.

Section 7. Indemnification.

(a) The Company will indemnify and hold harmless the Agent against any losses, third party claims, damages or liabilities, joint or several, to which the Agent may become subject, under the 1933 Act or otherwise, 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 Basic Prospectus, the Prospectus Supplement or 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 1933 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, and will reimburse the Agent for any legal or other expenses reasonably incurred by the Agent in connection with investigating or defending any such action or claim as such expenses are incurred; provided, however, that the Company shall not be liable in any such case to the extent that any such loss, claim, damage or liability 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 Basic Prospectus, the Prospectus Supplement or the Prospectus, or any amendment or supplement thereto, or any Issuer Free Writing Prospectus, in reliance upon and in conformity with written information furnished to the Company by the Agent expressly for use therein.

(b) The Agent will indemnify and hold harmless the Company against any losses, claims, damages or liabilities to which the Company may become subject, under the 1933 Act or otherwise, 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 Basic Prospectus, the Prospectus Supplement or the Prospectus, or any amendment or supplement thereto, or any Issuer Free Writing Prospectus, 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 Basic Prospectus, the Prospectus Supplement or the Prospectus, or any such

amendment or supplement thereto, or any Issuer Free Writing Prospectus, in reliance upon and in conformity with written information furnished to the Company by the Agent expressly for use therein; and will reimburse the Company for any legal or other expenses reasonably incurred by the Company in connection with investigating or defending any such action or claim as such expenses are incurred.

(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 omission so to notify the indemnifying party shall not relieve it from any liability which it may have to any indemnified party otherwise than under such subsection except and then only to the extent such indemnifying party is materially prejudiced thereby. In case any such action shall be brought against any indemnified party and it shall notify the indemnifying party of the commencement thereof, the indemnifying party shall be entitled to participate therein 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 (who shall not, except with the consent of the indemnified party, be counsel to the indemnifying party), and, after notice from the indemnifying party to such indemnified party of its election so to assume the defense thereof, the indemnifying party shall not be liable to such indemnified party under this Section 7 for any legal expenses of other counsel or any other expenses, in each case subsequently incurred by such indemnified party, in connection with the defense thereof other than reasonable costs of investigation. No indemnifying party shall, without the written consent of the indemnified party, effect the settlement or compromise of, or consent to the entry of any judgment with respect to, any pending or threatened action or claim in respect of which indemnification or contribution may be sought hereunder (whether or not the indemnified party is an actual or potential party to such action or claim) unless such settlement, compromise or judgment (i) includes an unconditional release of the indemnified party from all liability arising out of such action or claim and (ii) 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 to hold harmless an indemnified party under subsection (a) or (b) above in respect of any losses, claims, damages or liabilities (or actions in respect thereof) referred to therein, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of such losses, claims, damages or liabilities (or actions in respect thereof) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Agent on the other from the offering of the Shares to which such loss, claim, damage or liability (or action in respect thereof) relates. If, however, the allocation provided by the immediately preceding sentence is not permitted by applicable law, then each indemnifying party shall contribute to such amount paid or payable by such indemnified party in such proportion as is appropriate to reflect not only such relative benefits but also the relative fault of the Company on the one hand and the Agent on the other in connection with the statements or omissions which resulted in such losses, claims, damages or liabilities (or actions in respect thereof), as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Agent 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 commissions received by the Agent. 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 on the one hand or the Agent on the other and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and the Agent agree that it would not be just and equitable if contribution pursuant to this subsection (d) were determined by pro rata allocation or by any other method of allocation which does not take account of the equitable considerations referred to above in this subsection (d). The amount paid or payable by an indemnified party as a result of the losses, claims, damages or liabilities (or actions in respect thereof) referred to above in 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 any such action or claim. Notwithstanding the provisions of this subsection (d), the Agent shall not be required to contribute any amount in excess of the amount by which the total compensation received by the Agent with respect to sales of the Shares sold by it to the public exceeds the amount of any damages which the Agent has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the 1933 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 which the Company may otherwise have and shall extend, upon the same terms and conditions, to the directors, officers, employees, attorneys and agents of the Agent and to each person, if any, who controls the Agent within the meaning of Section 15 of the 1933 Act or Section 20 of the 1934 Act and each broker dealer affiliate of the Agent; and the obligations of the Agent under this Section 7 shall be in addition to any liability which the Agent may otherwise have and shall extend, upon the same terms and conditions, to each director, officer, employee, attorney and agent of the Company and to each person, if any, who controls the Company within the meaning of Section 15 of the 1933 Act or Section 20 of the 1934 Act.

Section 8. Representations, Warranties and Agreements to Survive Delivery. The respective indemnities, agreements, representations, warranties and other statements of the Company and the Agent, as set forth in this Agreement or made by or on behalf of them, respectively, pursuant to this Agreement, shall remain in full force and effect, regardless of any investigation (or any statement as to the results thereof) made by or on behalf of the Agent or any controlling person of the Agent, or the Company, or any officer or director or controlling person of the Company, and shall survive delivery of and payment for the Shares.

Section 9. No Advisory or Fiduciary Relationship. The Company acknowledges and agrees that (i) the Agent is acting solely in the capacity of an arm's length contractual counterparty to the Company with respect to the offering of Shares contemplated hereby (including in connection with determining the terms of such offering) and (ii) the Agent has not assumed an advisory or fiduciary responsibility in favor of the Company with respect to the offering contemplated hereby or the process leading thereto (irrespective of whether the Agent has advised or is currently advising the Company on other matters) or any other obligation to the Company except the obligations expressly set forth in this Agreement and (iii) the Company has consulted its own legal and financial advisors to the extent it deemed appropriate. The Company agrees that it will not claim that the Agent has rendered advisory services of any nature or respect, or owe a fiduciary or similar duty to the Company, in connection with such transaction or the process leading thereto.

Section 10. Termination.

(a) The Company shall have the right, by giving written notice as hereinafter specified, to terminate this Agreement in its sole discretion at any time. Any such termination shall be without liability of any party to any other party, except that (i) with respect to any pending sale through the Agent for the Company, the obligations of the Company, including in respect of compensation of the Agent, shall remain in full force and effect notwithstanding such termination; and (ii) the provisions of Section 1, Section 5, Section 7, Section 8, Section 14 and Section 15 of this Agreement shall remain in full force and effect notwithstanding such termination.

(b) The Agent shall have the right, by giving written notice as hereinafter specified, to terminate this Agreement in its sole discretion at any time. Any such termination shall be without liability of any party to any other party, except that (i) with respect to any pending sale through the Agent for the Company, the obligations of the Agent shall remain in full force and effect through completion of the sale notwithstanding such termination, and (ii) the provisions of Section 1, Section 5, Section 7, Section 8, Section 14 and Section 15 of this Agreement shall remain in full force and effect notwithstanding such termination.

(c) Unless earlier terminated pursuant to this Section 10, this Agreement shall automatically terminate upon the issuance and sale of all of the Shares by Agent on the terms and subject to the conditions set forth herein except any termination pursuant to this clause (c) shall in all cases be deemed to provide that Section 1, Section 5(b), Section 7, Section 8, Section 14 and Section 15 of this Agreement shall remain in full force and effect.

(d) This Agreement shall remain in full force and effect until and unless terminated pursuant to Section 10(a), (b) or (c) above or otherwise by mutual agreement of the parties; provided that any such termination by mutual agreement or pursuant to this clause (d) shall in all cases be deemed to provide that Section 1, Section 5, Section 7, Section 8, Section 14 and Section 15 of this Agreement shall remain in full force and effect.

(e) Any termination of this Agreement shall be effective on the date specified in such notice of termination; provided that such termination shall not be effective until the close of business on the date of receipt of

such notice by the Agent or the Company, as the case may be. If such termination shall occur prior to the Settlement Date for any sale of Shares, such sale shall settle in accordance with the provisions of Section 2(h) hereof.

(f) In the case of any purchase by the Agent pursuant to a Terms Agreement, the Agent may terminate this Agreement, at any time at or prior to the Settlement Date (i) if there has been, since the time of execution of this Agreement or since the respective dates as of which information is given in the General Disclosure Package or the Prospectus, any Material Adverse Effect, or (ii) if there has occurred any material adverse change in the financial markets in the United States or the international financial markets, any outbreak of hostilities or escalation thereof or other calamity or crisis or any change or development involving a prospective change in national or international political, financial or economic conditions, in each case the effect of which is such as to make it, in the judgment of the Agent, impracticable or inadvisable to market the Shares or to enforce contracts for the sale of Shares, or (iii) if trading in any securities of the Company has been suspended or materially limited by the Commission or the Nasdaq, or if trading generally on the New York Stock Exchange or the Nasdaq has been suspended or materially limited, or minimum or maximum prices for trading have been fixed, or maximum ranges for prices have been required, by any of said exchanges or by such system or by order of the Commission, FINRA or any other governmental authority, or (iv) a material disruption has occurred in commercial banking or securities settlement or clearance services in the United States, or (v) if a banking moratorium has been declared by either Federal or New York authorities.

Section 11. Notices. All statements, requests, notices and agreements hereunder shall be in writing, and if to Stifel Nicolaus shall be delivered or sent by mail, electronic mail, telex or facsimile transmission to:

Stifel, Nicolaus & Company, Incorporated
One South Street, 15th Floor
Baltimore, Maryland 21202
Fax No. (443) 224-1273
Attention: Syndicate Department

With a copy to:

Duane Morris LLP
1540 Broadway
New York, New York 10036
Attention: James T. Seery
E-mail: jtseery@duanemorris.com

and if to the Company to:

Ra Pharmaceuticals, Inc.
87 Cambridge Park Drive
Cambridge, Massachusetts 02140
Attention: Chief Financial Officer
E-mail: dlubner@rapharma.com

With a copy to:

Latham & Watkins LLP
200 Clarendon Street
Boston, Massachusetts 02116
Attention: Peter N. Handrinos, Esq.
Email: peter.handrinos@lw.com

Any such statements, requests, notices or agreements shall take effect upon receipt thereof.

Section 12. Parties. This Agreement shall be binding upon, and inure solely to the benefit of, the Agent and the Company and, to the extent provided in Sections 7 and 8 hereof, the officers, directors, employees, attorneys

and agents of the Company and the Agent and each person who controls the Company or the Agent, and their respective heirs, executors, administrators, successors and assigns, and no other person shall acquire or have any right under or by virtue of this Agreement. No purchaser of Shares through the Agent shall be deemed a successor or assign by reason merely of such purchase.

Section 13. Time of the Essence. Time shall be of the essence of this Agreement. As used herein, the term “business day” shall mean any day when the Commission’s office in Washington, D.C. is open for business.

Section 14. Waiver of Jury Trial. The Company and the Agent hereby irrevocably waive, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Agreement or the transactions contemplated hereby.

Section 15. Governing Law. THIS AGREEMENT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK WITHOUT REFERENCE TO ITS PRINCIPLES OF CONFLICTS OF LAW.

Section 16. Counterparts. This Agreement and any Terms Agreement may be executed by any one or more of the parties hereto and thereto in any number of counterparts, each of which shall be deemed to be an original, but all such respective counterparts shall together constitute one and the same instrument. This Agreement and any Terms Agreement may be delivered by any party by facsimile or other electronic transmission.

Section 17. Severability. The invalidity or unenforceability of any Section, paragraph or provision of this Agreement shall not affect the validity or enforceability of any other Section, paragraph or provision hereof. If any Section, paragraph or provision of this Agreement is for any reason determined to be invalid or unenforceable, there shall be deemed to be made such minor changes (and only such minor changes) as are necessary to make it valid and enforceable.

If the foregoing is in accordance with your understanding of our agreement, please sign and return to the Company a counterpart hereof, whereupon this instrument, along with all counterparts, will become a binding agreement between the Agent and the Company in accordance with its terms.

Very truly yours,

RA PHARMACEUTICALS, INC.

By: /s/ David C. Lubner

Name: David C. Lubner

Title: Executive Vice President and Chief Financial Officer

Accepted as of the date hereof:

STIFEL, NICOLAUS & COMPANY, INCORPORATED

By: /s/ Daniel J. Covatta

Name: Daniel J. Covatta

Title: Managing Director

Schedule 1

Subsidiaries

Cosmix Verwaltungs GmbH
Ra Europe Limited

RA PHARMACEUTICALS, INC.

Common Stock
(\$0.001 par value per share)

TERMS AGREEMENT

STIFEL, NICOLAUS & COMPANY, INCORPORATED
One South Street, 15th Floor
Baltimore, MD 21202
Attn: Syndicate Department

Ladies and Gentlemen:

Ra Pharmaceuticals, Inc., a Delaware corporation (the “Company”), proposes, subject to the terms and conditions stated herein and in the At-the-Market Equity Offering Sales Agreement, dated [•], 2018 (the “Sales Agreement”), between the Company and Stifel, Nicolaus & Company, Incorporated (the “Agent”), to issue and sell to the Agent the securities specified in the Schedule hereto (the “Purchased Securities”) [•], and solely for the purpose of covering over-allotments, to grant to the Agent the option to purchase the additional securities specified in the Schedule hereto (the “Additional Securities”)*.

[The Agent shall have the right to purchase from the Company all or a portion of the Additional Securities as may be necessary to cover over-allotments made in connection with the offering of the Purchased Securities, at the same purchase price per share to be paid by the Agent to the Company for the Purchased Securities. This option may be exercised by the Agent at any time (but not more than once) on or before the thirtieth day following the date hereof, by written notice to the Company. Such notice shall set forth the aggregate number of shares of Additional Securities as to which the option is being exercised, and the date and time when the Additional Securities are to be delivered (such date and time being herein referred to as the “Option Closing Date”); provided, however, that the Option Closing Date shall not be earlier than the Time of Delivery (as set forth in the Schedule hereto) nor earlier than the second business day after the date on which the option shall have been exercised nor later than the fifth business day after the date on which the option shall have been exercised. Payment of the purchase price for the Additional Securities shall be made at the Option Closing Date in the same manner and at the same office as the payment for the Purchased Securities.]*

Each of the provisions of the Sales Agreement not specifically related to the solicitation by the Agent, as agent of the Company, of offers to purchase securities is incorporated herein by reference in its entirety, and shall be deemed to be part of this Terms Agreement to the same extent as if such provisions had been set forth in full herein. Each of the representations and warranties set forth therein shall be deemed to have been made at and as of the date of this Terms Agreement [and] [•] the Applicable Time [and any Option Closing Date]*, except that each representation and warranty in Section 1 of the Sales Agreement which makes reference to the Prospectus (as therein defined) shall be deemed to be a representation and warranty as of the date of the Sales Agreement in relation to the Prospectus, and also a representation and warranty as of the date of this Terms Agreement [and] [•] the Settlement Date [and any Option Closing Date]* in relation to the Prospectus as amended and supplemented to relate to the Purchased Securities.

An amendment to the Registration Statement (as defined in the Sales Agreement), or a supplement to the Prospectus, as the case may be, relating to the Purchased Securities [and the Additional Securities]*, in the form heretofore delivered to the Agent is now proposed to be filed with the Securities and Exchange Commission.

Subject to the terms and conditions set forth herein and in the Sales Agreement which are incorporated herein by reference, the Company agrees to issue and sell to the Agent and the latter agrees to purchase from the Company the number of shares of the Purchased Securities at the time and place and at the purchase price set forth in the Schedule hereto.

If the foregoing is in accordance with your understanding of our agreement, please sign and return to the Company a counterpart hereof, whereupon this instrument, along with all counterparts, will become a binding agreement between the Agent and the Company in accordance with its terms.

Very truly yours,

RA PHARMACEUTICALS, INC.

By: _____

Name:

Title:

Accepted as of the date hereof:

STIFEL, NICOLAUS & COMPANY, INCORPORATED

By: _____

Name:

Title:

* Include only if the Agent has an over-allotment option.