
**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): September 14, 2022

RHYTHM PHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation or organization)

001-38223
(Commission
File Number)

46-2159271
(I.R.S. Employer
Identification No.)

**222 Berkeley Street
12th Floor
Boston, MA 02116**
(Address of principal executive offices) (Zip Code)

(857) 264-4280
(Registrant's telephone number, include area code)

N/A
(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))

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

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

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 8.01 Other Events.

On September 14, 2022, Rhythm Pharmaceuticals, Inc. (the “Company”) entered into an underwriting agreement (the “Underwriting Agreement”) with Cowen and Company, LLC, Stifel, Nicolaus & Company, Incorporated and Wells Fargo Securities, LLC, as representatives of the several underwriters named therein (the “Underwriters”), relating to the issuance and sale of 4,800,000 shares (the “Shares”) of the Company’s common stock to the Underwriters (the “Offering”). The Shares were sold at a price to the public of \$26.00 per Share and were purchased by the Underwriters from the Company at a price of \$24.44 per Share. The Company also granted the Underwriters a 30-day option to purchase up to 720,000 additional shares of its common stock (the “Additional Shares”). The net proceeds to the Company from the Offering, excluding any exercise by the Underwriters of their 30-day option to purchase Additional Shares, are expected to be approximately \$116.9 million, after deducting the underwriting discounts and commissions and estimated offering expenses payable by the Company.

The Offering is expected to close on or about September 19, 2022, subject to the satisfaction of customary closing conditions. The Underwriting Agreement contains customary representations, warranties, covenants and agreements by the Company, indemnification obligations of the Company and the Underwriters, including for liabilities under the Securities Act of 1933, as amended, other obligations of the parties and termination provisions. The representations, warranties and covenants contained in the Underwriting Agreement were made only for purposes of such agreement and as of specific dates, and were solely for the benefit of the parties to the Underwriting Agreement.

The Offering is being made by means of a written prospectus forming part of a shelf registration statement on Form S-3 (File No. 333-260689), previously filed by the Company with the Securities and Exchange Commission (the “Commission”) on November 2, 2021 and declared effective by the Commission on November 15, 2021, and a related prospectus supplement.

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

A copy of the opinion of Latham & Watkins LLP relating to the legality of the issuance and sale of the Shares and the Additional Shares in the Offering is attached as Exhibit 5.1 hereto.

Forward-Looking Statements

This Current Report on Form 8-K contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements contained in this Current Report on Form 8-K that do not relate to matters of historical fact should be considered forward-looking statements, including without limitation, statements regarding the completion of the proposed offering and the anticipated net proceeds from the offering.

Statements using words such as “expect”, “anticipate”, “believe”, “may”, “will” and similar terms are also forward-looking statements. Such statements are subject to numerous risks and uncertainties, including, but not limited to, risks associated with general economic and market conditions and the other important factors discussed under the caption “Risk Factors” in our Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2022 and our other filings with the Commission. Except as required by law, we undertake no obligations to make any revisions to the forward-looking statements contained in this Current Report on Form 8-K or to update them to reflect events or circumstances occurring after the date of this Current Report on Form 8-K, whether as a result of new information, future developments or otherwise.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No.	Description
1.1	Underwriting Agreement, dated as of September 14, 2022, between Rhythm Pharmaceuticals, Inc. and Cowen and Company, LLC, Stifel, Nicolaus & Company, Incorporated and Wells Fargo Securities, LLC, as representatives of the underwriters named therein.
5.1	Opinion of Latham & Watkins LLP.
23.1	Consent of Latham & Watkins LLP (included in Exhibit 5.1).
104	Cover Page Interactive Data File (embedded within the inline XBRL document)

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.

RHYTHM PHARMACEUTICALS, INC.

Date: September 15, 2022

By: /s/ Hunter Smith

Name: Hunter Smith

Title: Chief Financial Officer

4,800,000 Shares

Rhythm Pharmaceuticals, Inc.

Common Stock
(\$0.001 par value)

UNDERWRITING AGREEMENT

September 14, 2022

Cowen and Company, LLC
Stifel, Nicolaus & Company, Incorporated
Wells Fargo Securities, LLC

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

c/o Stifel, Nicolaus & Company, Incorporated
787 7th Avenue, 11th Floor
New York, New York 10019

c/o Wells Fargo Securities, LLC
500 West 33rd Street, 14th Floor
New York, New York 10001

Ladies and Gentlemen:

Rhythm Pharmaceuticals, Inc., a Delaware corporation (the “**Company**”), proposes to issue and sell to the several Underwriters named in Schedule I hereto (the “**Underwriters**”), for whom you (the “**Representatives**”) are acting as representatives, 4,800,000 shares of its common stock, \$0.001 par value per share (the “**Firm Shares**”). The Company also proposes to issue and sell to the several Underwriters not more than an additional 720,000 shares of its common stock, \$0.001 par value per share (the “**Additional Shares**”), if and to the extent that the Representatives shall have determined to exercise, on behalf of the Underwriters, the right to purchase such shares of common stock granted to the Underwriters in Section 2 hereof. The Firm Shares and the Additional Shares are hereinafter collectively referred to as the “**Shares**.” The shares of common stock, \$0.001 par value per share, of the Company to be outstanding after giving effect to the sales contemplated hereby are hereinafter referred to as the “**Common Stock**.”

The Company has filed with the Securities and Exchange Commission (the “**Commission**”) a registration statement on Form S-3 (File No. 333-260689), including a prospectus, relating to certain securities of the Company to be issued from time to time by the Company (the “**Shelf Securities**”), including the Shares. The registration statement as amended at the time of effectiveness, including the information (if any) deemed to be part of the registration statement pursuant to Rule 430A or Rule 430B under the Securities Act of 1933, as amended (the “**Securities Act**”), is hereinafter referred to as the “**Registration Statement**” and the related prospectus covering the Shelf Securities is hereinafter referred to as the “**Base Prospectus**.” The Base Prospectus, as supplemented by the prospectus supplement specifically related to the Shares in the form first used to confirm sales of the Shares (or in the form first made available to the Underwriters by the Company to meet requests of purchasers pursuant to Rule 173 under the Securities Act) is hereinafter referred to as the “**Prospectus**” and the term “**preliminary prospectus**” means any preliminary form of the Prospectus.

For purposes of this Agreement, “**free writing prospectus**” has the meaning set forth in Rule 405 under the Securities Act, “**Time of Sale Prospectus**” means the Base Prospectus and the preliminary prospectus together with the documents, pricing information and free writing prospectuses, if any, each as set forth in Schedule II hereto, and “**road show**” means any “road show as defined in Rule 433(h) under the Securities Act.” As used herein, the terms “Registration Statement,” “preliminary prospectus,” “Time of Sale Prospectus” and “Prospectus” shall include the documents, if any, incorporated by reference therein as of the date hereof. The terms “**supplement**,” “**amendment**” and “**amend**” as used herein with respect to the Registration Statement, the Prospectus or the Time of Sale Prospectus shall include all documents subsequently filed by the Company with the Commission pursuant to the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”), that are deemed to be incorporated by reference therein.

1. *Representations and Warranties.* The Company represents and warrants to and agrees with each of the Underwriters that:

(a) The Registration Statement has become effective; no stop order suspending the effectiveness of the Registration Statement is in effect, and no proceedings for such purpose or pursuant to Section 8A under the Securities Act are pending before or, to the Company’s knowledge, threatened by the Commission.

(b) (i) Each document, if any, filed or to be filed pursuant to the Exchange Act and incorporated by reference in the Time of Sale Prospectus or the Prospectus complied or will comply when so filed in all material respects with the Exchange Act and the applicable rules and regulations of the Commission thereunder, (ii) the Registration Statement, when it became effective, did not contain and, as amended or supplemented, if applicable, will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading, (iii) the Registration Statement and the Prospectus comply and, as amended or supplemented, if applicable, will comply in all material respects with the Securities Act and the applicable rules and regulations of the Commission thereunder, (iv) the Time of Sale Prospectus does not, and at the time of each sale of the Shares in connection with the offering when the Prospectus is not yet available to prospective purchasers and at the Closing Date (as defined in Section 4), the Time of Sale Prospectus, as then amended or supplemented by the Company, if applicable, will not, contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading, (v) each road show, if any, when considered together with the Time of Sale Prospectus, does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading and (vi) the Prospectus does not contain and, as amended or supplemented, if applicable, will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading, except that the representations and warranties set forth in this paragraph do not apply to statements or omissions in the Registration Statement, the Time of Sale Prospectus or the Prospectus based upon information relating to any Underwriter furnished to the Company in writing by such Underwriter through you expressly for use therein.

(c) The Company is not an “ineligible issuer” in connection with the offering pursuant to Rules 164, 405 and 433 under the Securities Act. Any free writing prospectus that the Company is required to file pursuant to Rule 433(d) under the Securities Act has been, or will be, filed with the Commission in accordance with the requirements of the Securities Act and the applicable rules and regulations of the Commission thereunder. Each free writing prospectus that the Company has filed, or is required to file, pursuant to Rule 433(d) under the Securities Act or that was prepared by or on behalf of or used or referred to by the Company complies or will comply in all material respects with the requirements of the Securities Act and the applicable rules and regulations of the Commission thereunder. Except for the free writing prospectuses, if any, identified in Schedule II hereto, and electronic road shows, if any, each furnished to you before first use, the Company has not prepared, used or referred to, and will not, without your prior consent, prepare, use or refer to, any free writing prospectus.

(d) As of the time of each sale of the Shares in connection with the offering when the Prospectus is not yet available to prospective purchasers, none of (A) the Time of Sale Prospectus and (B) any free writing prospectus, when considered together with the Time of Sale Prospectus, included, includes or will include an untrue statement of a material fact or omitted, omits or will omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(e) The Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the jurisdiction in which it is chartered or organized with full corporate power and authority to own or lease, as the case may be, and to operate its properties and conduct its business as described in the Prospectus, any free writing prospectus and the Time of Sale Prospectus, and is duly qualified to do business as a foreign corporation and is in good standing under the laws of each jurisdiction which requires such qualification, except where the failure to be so qualified or in good standing would not reasonably be expected, individually or in the aggregate, to have a material adverse effect on the condition (financial or otherwise), prospects, earnings, business or properties of the Company and its subsidiaries, taken as a whole, whether or not arising from transactions in the ordinary course of business (a “**Material Adverse Effect**”).

(f) Each subsidiary of the Company has been duly incorporated, is validly existing as a corporation in good standing under the laws of the jurisdiction of its incorporation, has the corporate power and authority to own its property and to conduct its business as described in the Prospectus, any free writing prospectus and the Time of Sale Prospectus, and is duly qualified to transact business and is in good standing in each jurisdiction in which the conduct of its business or its ownership or leasing of property requires such qualification, except to the extent that the failure to be so qualified or be in good standing would not have a Material Adverse Effect; all of the issued shares of capital stock of each subsidiary of the Company have been duly and validly authorized and issued, are fully paid and non-assessable and are owned directly by the Company, free and clear of all liens, encumbrances, equities or claims.

(g) The outstanding shares of capital stock of the Company have been duly and validly authorized and issued and are fully paid and nonassessable; the Shares have been duly and validly authorized and, when issued and delivered to and paid for by the Underwriters pursuant to this Agreement, will be fully paid and nonassessable; the holders of shares of capital stock of the Company are not entitled to preemptive or other rights to subscribe for the Shares; and, except as set forth in the Prospectus, any free writing prospectus and the Time of Sale Prospectus, no options, warrants or other rights to purchase, agreements or other obligations to issue, or rights to convert any obligations into or exchange any securities for, shares of capital stock of or ownership interests in the Company are outstanding. The authorized capital stock of the Company conforms as to legal matters to the description thereof contained in each of the Time of Sale Prospectus and the Prospectus.

(h) Neither the Company nor its subsidiaries currently own or control, directly or indirectly, any interest in any other corporation, partnership, trust, joint venture, limited liability company, association, or other business entity. Neither the Company nor its subsidiaries are a participant in any joint venture, partnership or similar arrangement.

(i) There is no contract or other document of a character required to be described in the Registration Statement or Time of Sale Prospectus, or to be filed as an exhibit thereto, which is not described or filed as required (and the preliminary prospectus contains in all material respects the same description of the foregoing matters contained in the Time of Sale Prospectus); and the statements contained or incorporated by reference in the Prospectus and the Time of Sale Prospectus under the headings “Material U.S. Federal Income Tax Consequences to Non-U.S. Holders,” “Risk Factors—Risks Related to Our Intellectual Property Rights,” “Risk Factors—Risks Related to the Development of Setmelanotide,” “Risk Factors—Risks Related to the Commercialization of IMCIVREE (setmelanotide),” “Business—Patents and Proprietary Rights,” and “Business—Regulatory Matters,” insofar as such statements summarize legal matters, agreements, documents or proceedings discussed therein, are accurate and fair summaries of such legal matters, agreements, documents or proceedings.

(j) This Agreement has been duly authorized, executed and delivered by the Company.

(k) There has not occurred any material adverse change, or any development involving a prospective material adverse change, in the condition, financial or otherwise, or in the earnings, business or operations of the Company or its subsidiaries, taken as a whole, from that set forth in the Time of Sale Prospectus.

(l) The Company is not and, after giving effect to the offering and sale of the Shares and the application of the proceeds thereof as described in the Prospectus, any free writing prospectus and the Time of Sale Prospectus, will not be an "investment company" as defined in the Investment Company Act of 1940, as amended.

(m) No consent, approval, authorization, filing with or order of any court or governmental agency or body is required in connection with the transactions contemplated herein, except such as have been obtained under the Securities Act and such as may be required under the blue sky laws of any jurisdiction in connection with the purchase and distribution of the Shares by the Underwriters in the manner contemplated herein and in the Prospectus, any free writing prospectus and the Time of Sale Prospectus.

(n) [Reserved]

(o) Neither the issue and sale of the Shares nor the consummation of any other of the transactions herein contemplated nor the fulfillment of the terms hereof will conflict with, result in a breach or violation of, or imposition of any lien, charge or encumbrance upon any property or assets of the Company or its subsidiaries pursuant to, (i) the charter or by-laws of the Company and its subsidiaries, (ii) the terms of any indenture, contract, lease, mortgage, deed of trust, note agreement, loan agreement or other agreement, obligation, condition, covenant or instrument to which the Company and its subsidiaries are a party or bound or to which its property is subject, or (iii) any statute, law, rule, regulation, judgment, order or decree applicable to the Company or any of its subsidiaries of any court, regulatory body, administrative agency, governmental body, arbitrator or other authority having jurisdiction over the Company or any of its properties, except in the case of clauses (ii) and (iii) as would not have a Material Adverse Effect.

(p) No holders of securities of the Company have rights to the registration of such securities under the Registration Statement, except such rights which have been duly waived in accordance with their terms and with the General Corporation Law of the State of Delaware.

(q) The consolidated historical financial statements and schedules of the Company included or incorporated by reference in the Prospectus, the Time of Sale Prospectus and the Registration Statement present fairly in all material respects the financial condition, results of operations and cash flows of the Company as of the dates and for the periods indicated, comply as to form in all material respects with the applicable accounting requirements of the Securities Act and have been prepared in conformity with generally accepted accounting principles applied on a consistent basis throughout the periods involved (except as otherwise noted therein). Except as included therein, no historical or pro forma financial statements or supporting schedules are required to be included or incorporated by reference in the Prospectus, the Time of Sale Prospectus and the Registration Statement under the Securities Act and the rules and regulations of the Commission thereunder. To the extent included or incorporated by reference in the Prospectus, the Time of Sale Prospectus and the Registration Statement, the pro forma financial statements included or incorporated by reference therein include assumptions that provide a reasonable basis for presenting the significant effects directly attributable to the transactions and events described therein, the related pro forma adjustments give appropriate effect to those assumptions, and the pro forma adjustments reflect the proper application of those adjustments to the historical financial statement amounts in the pro forma financial statements included or incorporated by reference in the Prospectus, the Time of Sale Prospectus and the Registration Statement. To the extent included or incorporated by reference in the Prospectus, the Time of Sale Prospectus and the Registration Statement, the pro forma financial statements included therein comply as to form in all material respects with the applicable accounting requirements of Regulation S-X under the Securities Act and the pro forma adjustments have been properly applied to the historical amounts in the compilation of those statements.

(r) No action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries or their property is pending or, to the knowledge of the Company, threatened that could reasonably be expected to have a Material Adverse Effect, except as set forth in or contemplated in the Prospectus, any free writing prospectus and the Time of Sale Prospectus (exclusive of any supplement thereto).

(s) The Company and its subsidiaries own or lease all such properties as are necessary to the conduct of its operations as presently conducted in all material respects.

(t) Neither the Company nor any of its subsidiaries is in violation or default of (i) its respective charter or bylaws, (ii) the terms of any indenture, contract, lease, mortgage, deed of trust, note agreement, loan agreement or other agreement, obligation, condition, covenant or instrument to which it or any of its subsidiaries is a party or bound or to which its or any of its subsidiaries property is subject, or (iii) any statute, law, rule, regulation, judgment, order or decree of any court, regulatory body, administrative agency, governmental body, arbitrator or other authority having jurisdiction over the Company or any of its subsidiaries or any of their properties, as applicable, except in the case of clauses (ii) and (iii), for such breach or violation as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(u) Ernst & Young LLP, who have certified certain financial statements of the Company and delivered their report with respect to the audited financial statements and schedules included or incorporated by reference in the Prospectus, any free writing prospectus and the Time of Sale Prospectus, are independent public accountants with respect to the Company within the meaning of the Securities Act and the applicable published rules and regulations thereunder.

(v) There are no transfer taxes or other similar fees or charges under federal law or the laws of any state, or any political subdivision thereof, required to be paid in connection with the execution and delivery of this Agreement or the issuance by the Company or sale by the Company of the Shares.

(w) The Company and each of its subsidiaries has filed all tax returns that are required to be filed or has requested extensions thereof and has paid all taxes required to be paid by it and any other assessment, fine or penalty levied against it, to the extent that any of the foregoing is due and payable, except (i) for any such assessment, fine or penalty that is currently being contested in good faith or (ii) where such failure to file or pay would not have a Material Adverse Effect.

(x) No labor problem or dispute with the employees of the Company or any of its subsidiaries exists or, to the knowledge of the Company, is threatened or imminent, and the Company is not aware of any existing or imminent labor disturbance by the employees of any of its principal suppliers, contractors or customers, that could have a Material Adverse Effect.

(y) The Company and each of its subsidiaries are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as the Company reasonably believes are prudent and customary in the businesses in which they are engaged; all policies of insurance and fidelity or surety bonds insuring the Company and its subsidiaries or their business, assets, employees, officers and directors are in full force and effect; the Company and each of its subsidiaries are in compliance with the terms of such policies and instruments in all material respects; and there are no claims by the Company or any of its subsidiaries under any such policy or instrument as to which any insurance company is denying liability or defending under a reservation of rights clause; neither the Company nor any of its subsidiaries have been refused any insurance coverage sought or applied for; and neither the Company nor any of its subsidiaries have any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not have a Material Adverse Effect.

(z) The Company and each of its subsidiaries possess all licenses, certificates, permits and other authorizations issued by all applicable authorities necessary to conduct its business, except in each case, the lack of which would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect, and neither the Company nor any of its subsidiaries have received any notice of proceedings relating to the revocation or modification of any such certificate, authorization or permit which, singly or in the aggregate, if the subject of an unfavorable decision, ruling or finding, would have a Material Adverse Effect.

(aa) The Company and each of its subsidiaries maintain a system of internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management's general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Company's and its subsidiaries' internal controls over financial reporting are effective and the Company is not aware of any material weakness in its internal controls over financial reporting.

(bb) The Company and each of its subsidiaries maintain "disclosure controls and procedures" (as such term is defined in Rule 13a-15(e) under the Exchange Act) and such disclosure controls and procedures are effective.

(cc) Neither the Company nor any of its subsidiaries have taken, directly or indirectly, without giving effect to any activities of the Underwriters, any action designed to or that would constitute or that might reasonably be expected to cause or result in, under the Exchange Act or otherwise, stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Shares.

(dd) Except in each case as would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect, the Company and each of its subsidiaries (i) are in compliance with any and all applicable foreign, federal, state and local laws and regulations relating to the protection of human health and safety, the environment or hazardous or toxic substances or wastes, pollutants or contaminants ("**Environmental Laws**"), (ii) have received and is in compliance with all permits, licenses or other approvals required of it under applicable Environmental Laws to conduct its business and (iii) have not received notice of any actual or potential liability under any environmental law. Neither the Company nor any of its subsidiaries have been named as a "potentially responsible party" under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended.

(ee) None of the following events has occurred or exists: (i) a failure to fulfill the obligations, if any, under the minimum funding standards of Section 302 of the United States Employee Retirement Income Security Act of 1974, as amended (“**ERISA**”), and the regulations and published interpretations thereunder with respect to a Plan that is required to be funded, determined without regard to any waiver of such obligations or extension of any amortization period that would reasonably be expected to have a Material Adverse Effect; (ii) an audit or investigation by the Internal Revenue Service, the U.S. Department of Labor, the Pension Benefit Guaranty Corporation or any other federal or state governmental agency or any foreign regulatory agency with respect to the employment or compensation of employees by the Company or any of its subsidiaries that would reasonably be expected to have a Material Adverse Effect; (iii) any breach of any contractual obligation, or any violation of law or applicable qualification standards, with respect to the employment or compensation of employees by the Company or any of its subsidiaries that would reasonably be expected to have a Material Adverse Effect. None of the following events has occurred or is reasonably likely to occur: (i) a material increase in the aggregate amount of contributions required to be made to all Plans in the current fiscal year of the Company compared to the amount of such contributions made in the most recently completed fiscal year of the Company; (ii) a material increase in the “accumulated post-retirement benefit obligations” (within the meaning of Statement of Financial Accounting Standards 106) of the Company or any of its subsidiaries compared to the amount of such obligations in the most recently completed fiscal year of the Company; (iii) any event or condition giving rise to a liability under Title IV of ERISA that would reasonably be expected to have a Material Adverse Effect; or (iv) the filing of a claim by one or more employees or former employees of the Company or any of its subsidiaries related to their employment that would reasonably be expected to have a Material Adverse Effect. For purposes of this paragraph, the term “**Plan**” means a plan (within the meaning of Section 3(3) of ERISA) subject to Title IV of ERISA with respect to which the Company or any of its subsidiaries may have any liability.

(ff) There is and has been no failure on the part of the Company or any of its subsidiaries and any of their respective directors or officers, in their capacities as such, to comply 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 relating to loans.

(gg) (i) None of the Company or its subsidiaries, or any director, officer, or employee thereof, or, to the Company’s knowledge, any agent, controlled affiliate or representative of the Company or its subsidiaries, has taken or will take any action in furtherance of an offer, payment, promise to pay, or authorization or approval of the payment, giving or receipt of money, property, gifts or anything else of value, directly or indirectly, to any government official (including any officer or employee of a government or government-owned or controlled entity or of a public international organization, or any person acting in an official capacity for or on behalf of any of the foregoing, or any political party or party official or candidate for political office) in order to influence official action, or to any person in violation of any applicable anti-corruption laws; (ii) the Company and its subsidiaries and, to the Company’s knowledge, each of its controlled affiliates, has conducted its business in compliance with applicable anti-corruption laws and has instituted and maintained and will continue to maintain policies and procedures reasonably designed to promote and achieve compliance with such laws and with the representations and warranties contained herein; and (iii) neither the Company nor its subsidiaries will use, directly or indirectly, the proceeds of the offering in furtherance of an offer, payment, promise to pay, or authorization of the payment or giving of money, or anything else of value, to any person in violation of any applicable anti-corruption laws.

(hh) The operations of the Company and its subsidiaries are and have been conducted at all times in material compliance with all applicable financial recordkeeping and reporting requirements, including those of the Bank Secrecy Act, as amended by Title III of the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (USA PATRIOT Act), and the applicable anti-money laundering statutes of jurisdictions where the Company and its subsidiaries conduct business, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the “**Anti-Money Laundering Laws**”), and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Anti-Money Laundering Laws is pending or, to the best knowledge of the Company, threatened.

(ii) (i) None of the Company, any of its subsidiaries, or any director, officer, or employee thereof, or, to the Company’s knowledge, any agent, affiliate or representative of the Company or any of its subsidiaries, is an individual or entity (“**Person**”) that is, or is owned or controlled by one or more Persons that are

(A) the subject of any sanctions administered or enforced by the U.S. Department of Treasury’s Office of Foreign Assets Control (“**OFAC**”), the United Nations Security Council (“**UNSC**”), the European Union (“**EU**”), Her Majesty’s Treasury (“**HMT**”), or other relevant sanctions authority (collectively, “**Sanctions**”), or

(B) located, organized or resident in a country or territory that is the subject of Sanctions (including, without limitation, Crimea, the so-called Donetsk People’s Republic, the so-called Luhansk People’s Republic, Cuba, Iran, North Korea, Russia and Syria).

(ii) The Company will not, directly or indirectly, use the proceeds of the offering, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other Person:

(A) to fund or facilitate any activities or business of or with any Person or in any country or territory that, at the time of such funding or facilitation, is the subject of Sanctions; or

(B) in any other manner that will result in a violation of Sanctions by any Person (including any Person participating in the offering, whether as underwriter, advisor, investor or otherwise).

(iii) For the past 5 years, the Company and its subsidiaries have not knowingly engaged in, is not now knowingly engaged in, and will not engage in, any dealings or transactions with any Person, or in any country or territory, that at the time of the dealing or transaction is or was the subject of Sanctions.

(jj) The Company and its subsidiaries own, possess, license or have other rights to use, on reasonable terms, all patents, patent applications, trade and service marks, trade and service mark registrations, trade names, copyrights, licenses, inventions, trade secrets, technology, know-how and other intellectual property (collectively, the “**Intellectual Property**”) necessary for the conduct of their business in all material respects as now conducted or as proposed in the Prospectus to be conducted. Except as set forth in the Prospectus, any free writing prospectus and the Time of Sale Prospectus under the captions “Risk Factors—Risks Related to Our Intellectual Property Rights” and “Business—Patents and Proprietary Rights,” (a) there are no rights of third parties to any such Intellectual Property; (b) to the Company’s knowledge, there is no material infringement by third parties of any such Intellectual Property; (c) there is no pending or, to the Company’s knowledge, threatened action, suit, proceeding or claim by others challenging the Company’s or any of its subsidiaries’ rights in or to any such Intellectual Property, and, except as would not reasonably be expected to have a Material Adverse Effect, the Company is unaware of any facts which would form a reasonable basis for any such claim; (d) there is no pending or, to the Company’s knowledge, threatened action, suit, proceeding or claim by others challenging the validity or scope of any such Intellectual Property, and, except as would not reasonably be expected to have a Material Adverse Effect, the Company is unaware of any facts which would form a reasonable basis for any such claim; (e) there is no pending or, to the Company’s knowledge, threatened action, suit, proceeding or claim by others that the Company or any of its subsidiaries infringes or otherwise violates any patent, trademark, copyright, trade secret or other proprietary rights of others, and, except as would not reasonably be expected to have a Material Adverse Effect, the Company is unaware of any other fact which would form a reasonable basis for any such claim; (f) there is no U.S. patent which contains claims that dominate any Intellectual Property described in the Prospectus, any free writing prospectus and the Time of Sale Prospectus as being owned by or licensed to the Company or its subsidiaries or that interferes with the issued claims of any such Intellectual Property; and (g) there is no prior art that may render any U.S. patent held by the Company and its subsidiaries invalid, and all prior art of which the Company is aware that may be material to the validity of a U.S. patent or to the patentability of a U.S. patent application has been disclosed to the U.S. Patent and Trademark Office.

(kk) The statements contained or incorporated by reference in the Prospectus and the Time of Sale Prospectus under the captions “Risk Factors—Risks Related to Our Intellectual Property Rights” and “Business—Patents and Proprietary Rights,” insofar as such statements summarize legal matters, agreements, documents, or proceedings discussed therein, are accurate and fair summaries of such legal matters, agreements, documents or proceedings.

(ll) Except as described in the Registration Statement, the Prospectus, any free writing prospectus and the Time of Sale Prospectus, as applicable, the Company and its subsidiaries (i) are and at all times have been in compliance with all local, state, federal, national, supranational and foreign statutes, rules and regulations applicable to the ownership, testing, development, manufacture, packaging, processing, use, storage, import, export or disposal of any product manufactured or distributed by the Company and its subsidiaries, including, without limitation, the Federal Food, Drug and Cosmetic Act (21 U.S.C. § 301 et seq.), and the federal Anti-kickback Statute (42 U.S.C. § 1320a-7b(b)), the regulations promulgated pursuant to such laws, and any successor government programs, and comparable state laws, regulations relating to Good Laboratory Practices and Good Clinical Practices (collectively, the “**Applicable Laws**”), except for such non-compliance as would not, individually or in the aggregate, have a Material Adverse Effect; (ii) have not received any FDA Form 483, notice of adverse finding, warning letter, untitled letter or other written correspondence or notice from the U.S. Food and Drug Administration (the “**FDA**”) or any other state, local or foreign governmental or regulatory authority alleging or asserting non-compliance with any Applicable Laws or any licenses, exemptions, certificates, approvals, clearances, authorizations, permits, registrations and supplements or amendments thereto required by any such Applicable Laws (“**Authorizations**”), except for such non-compliance as would not, individually or in the aggregate, have a Material Adverse Effect; (iii) possess all material Authorizations and such Authorizations are valid and in full force and effect and is not in violation of any term of any such Authorizations, except for such violations as would not, individually or in the aggregate, have a Material Adverse Effect; (iv) have not received written notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any court or arbitrator or governmental or regulatory authority alleging that any product, operation or activity is in violation of any Applicable Laws or Authorizations nor, to the Company’s knowledge, is any such claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action threatened, except such as would not, individually or in the aggregate, have a Material Adverse Effect; (v) have not received written notice that any court or arbitrator or governmental or regulatory authority has taken, is taking or intends to take action to materially limit, suspend, materially modify or revoke any Authorizations nor, to the Company’s knowledge, is any such limitation, suspension, modification or revocation threatened, except such as would not, individually or in the aggregate, have a Material Adverse Effect; (vi) have filed, obtained, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Applicable Laws or Authorizations and that all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and accurate on the date filed in all material respects (or were corrected or supplemented by a subsequent submission); (vii) are not a party to any corporate integrity agreements, monitoring agreements, consent decrees, settlement orders, or similar agreements with or imposed by any governmental or regulatory authority; and (viii) since November 25, 2020, have not, either voluntarily or involuntarily, initiated, conducted or issued or caused to be initiated, conducted or issued, any recall, market withdrawal or replacement, safety alert, “dear doctor” letter or other notice or action relating to the alleged lack of safety or efficacy of any product or any alleged product defect or violation and, to the Company’s knowledge, no third party has initiated, conducted or intends to initiate any such notice or action, except such as would not, individually or in the aggregate, have a Material Adverse Effect.

(mm) The studies, tests and preclinical and clinical trials conducted by the Company that are described in the Registration Statement, the Time of Sale Prospectus and the Prospectus and, to the Company's knowledge, those studies, tests and preclinical and clinical trials conducted on behalf of the Company, were and, if still pending, are being conducted in all material respects in accordance with all Applicable Laws and Authorizations; the descriptions of the results of such studies, tests and trials contained in the Registration Statement, the Time of Sale Prospectus and the Prospectus are accurate and complete and fairly present the data derived from such studies, tests and trials in all material respects; the Company is not aware of any studies, tests or trials, the results of which the Company believes are materially inconsistent with the study, test or trial results described or referred to in the Registration Statement, the Time of Sale Prospectus and the Prospectus when viewed in the context in which such results are described and the clinical state of development; and the Company has not received any written notices or written correspondence from the FDA or any other federal, state, local or foreign governmental or regulatory authority requiring the termination, suspension or material modification of any studies, tests or preclinical or clinical trials conducted by or on behalf of the Company.

(nn) None of the Company or, to the knowledge of the Company, any of its officers, directors or managing employees (as defined in 42 U.S.C. § 1320a-5(b)) is or has been, during the past three (3) years, excluded, suspended or debarred from participation in any state or federal health care program, or made subject to any pending or, to the Company's knowledge, threatened or contemplated action which could reasonably be expected to result in such exclusion, suspension or debarment.

(oo) Except as disclosed in the Registration Statement, the Time of Sale Prospectus and the Prospectus or otherwise as part of the ordinary course of the business of the Company and its subsidiaries, neither the Company nor any of its subsidiaries has granted rights to develop, manufacture, produce, assemble, distribute, license, market or sell its products to any other person and is not bound by any agreement that materially affects the exclusive right of the Company or such subsidiary to develop, manufacture, produce, assemble, distribute, license, market or sell its products.

(pp) Subsequent to the respective dates as of which information is given in each of the Registration Statement, the Time of Sale Prospectus and the Prospectus, (i) neither the Company nor its subsidiaries have incurred any material liability or obligation, direct or contingent, nor entered into any material transaction; (ii) neither the Company nor its subsidiaries have purchased any of its respective outstanding capital stock, nor declared, paid or otherwise made any dividend or distribution of any kind on its capital stock other than ordinary and customary dividends and distributions pursuant to any equity incentive plans or other arrangements described in the Registration Statement, the Time of Sale Prospectus, and the Prospectus; and (iii) there has not been any material change in the capital stock, short-term debt or long-term debt of the Company or its subsidiaries, except in each case as described in each of the Registration Statement, the Time of Sale Prospectus and the Prospectus, respectively.

(qq) Except as described in the Time of Sale Prospectus, the Company has not sold, issued or distributed any shares of Common Stock during the six-month period preceding the date hereof, including any sales pursuant to Rule 144A under, or Regulation D or S of, the Securities Act, other than shares issued pursuant to employee benefit plans, qualified stock option plans or other employee compensation plans or arrangements or pursuant to outstanding options, rights or warrants.

(rr) Any certificate signed by any officer of the Company and delivered to the Representatives or counsel for the Underwriters in connection with the offering of the Shares shall be deemed a representation and warranty by the Company, as to matters covered thereby, to each Underwriter.

(ss) (i) The Company and its subsidiaries have materially complied and are presently in material compliance with all of their internal and external privacy policies, contractual obligations, applicable laws, statutes, judgments, orders, rules and regulations of any court or arbitrator or other governmental or regulatory authority and any other legal obligations, in each case, relating to the collection, use, transfer, import, export, storage, protection, disposal and disclosure by the Company and its subsidiaries of personal data or personally identifiable information (“**Data Security Obligations**”, and such data, “**Data**”); (ii) neither the Company nor any of its subsidiaries have received any written notification of or complaint regarding and, to the Company’s knowledge, there are no other facts that, individually or in the aggregate, would reasonably indicate non-compliance with any Data Security Obligation; and (iii) there is no action, suit or proceeding by or before any court or governmental agency, authority or body pending or threatened alleging in writing non-compliance with any Data Security Obligation.

(tt) The Company and its subsidiaries have taken all commercially reasonable technical and organizational measures necessary to protect the information technology systems and Data used in connection with the operation of their business. Without limiting the foregoing, the Company and its subsidiaries have used commercially reasonable efforts to establish and maintain, and have established, maintained, implemented and complied with, commercially reasonable information technology, information security, cyber security and data protection controls, policies and procedures, including oversight, access controls, encryption, technological and physical safeguards and business continuity/disaster recovery and security plans that are designed to protect against and prevent unauthorized access to or acquisition of Data used in connection with the operation of the their business (“**Breach**”). To the Company’s knowledge, there has been no such Breach, and neither the Company nor any of its subsidiaries have been notified in writing of and has no knowledge of any event or condition that would reasonably be expected to result in, any such Breach.

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

(vv) The Company is subject to and in compliance in all material respects with the reporting requirements of Section 13 or Section 15(d) of the Exchange Act. The Common Stock is registered pursuant to Section 12(b) or 12(g) of the Exchange Act and is listed on The Nasdaq Global Market (the “**Exchange**”), and the Company has taken no action designed to, or reasonably likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act or delisting the Common Stock from the Exchange, nor has the Company received any notification that the Commission or the Exchange is contemplating terminating such registration or listing.

2. *Agreements to Sell and Purchase.* The Company hereby agrees to sell to the several Underwriters, and each Underwriter, upon the basis of the representations and warranties herein contained, but subject to the conditions hereinafter stated, agrees, severally and not jointly, to purchase from the Company the respective numbers of Firm Shares set forth in Schedule I hereto opposite its name at \$24.44 a share (the “**Purchase Price**”).

On the basis of the representations and warranties contained in this Agreement, and subject to its terms and conditions, the Company agrees to sell to the Underwriters the Additional Shares, and the Underwriters shall have the right to purchase, severally and not jointly, up to 720,000 Additional Shares at the Purchase Price, provided, however, that the amount paid by the Underwriters for any Additional Shares shall be reduced by an amount per share equal to any dividends declared by the Company and payable on the Firm Shares but not payable on such Additional Shares. You may exercise this right on behalf of the Underwriters in whole or from time to time in part by giving written notice to the Company not later than 30 days after the date of this Agreement. Any exercise notice shall specify the number of Additional Shares to be purchased by the Underwriters and the date on which such shares are to be purchased. Each purchase date must be at least one business day after the written notice is given and may not be earlier than the closing date for the Firm Shares nor later than ten business days after the date of such notice. On each day, if any, that Additional Shares are to be purchased (an “**Option Closing Date**”), each Underwriter agrees, severally and not jointly, to purchase the number of Additional Shares (subject to such adjustments to eliminate fractional shares as you may determine) that bears the same proportion to the total number of Additional Shares to be purchased on such Option Closing Date as the number of Firm Shares set forth in Schedule I hereto opposite the name of such Underwriter bears to the total number of Firm Shares.

3. *Terms of Public Offering.* The Company is advised by you that the Underwriters propose to make a public offering of their respective portions of the Shares as soon after the Registration Statement and this Agreement have become effective as in your judgment is advisable. The Company is further advised by you that the Shares are to be offered to the public initially at \$26.00 a share (the “**Public Offering Price**”).

4. *Payment and Delivery.* Payment for the Firm Shares shall be made to the Company in federal or other funds immediately available in New York City against delivery of such Firm Shares for the respective accounts of the several Underwriters at 10:00 a.m., New York City time, on September 19, 2022, or at such other time on the same or such other date, not later than September 26, 2022 as shall be designated in writing by you. The time and date of such payment are hereinafter referred to as the “**Closing Date.**”

Payment for any Additional Shares shall be made to the Company in federal or other funds immediately available in New York City against delivery of such Additional Shares for the respective accounts of the several Underwriters at 10:00 a.m., New York City time, on the date specified in the corresponding notice described in Section 2 or at such other time on the same or on such other date, in any event not later than October 28, 2022, as shall be designated in writing by you.

The Firm Shares and Additional Shares shall be registered in such names and in such denominations as you shall request in writing not later than one full business day prior to the Closing Date or the applicable Option Closing Date, as the case may be. The Firm Shares and Additional Shares shall be delivered to you on the Closing Date or an Option Closing Date, as the case may be, for the respective accounts of the several Underwriters, with any transfer taxes payable in connection with the transfer of the Shares to the Underwriters duly paid, against payment of the Purchase Price therefor.

5. *Conditions to the Underwriters' Obligations.* The obligations of the several Underwriters hereunder are subject to the accuracy of the representations and warranties of the Company contained herein or in certificates of any officer of the Company delivered pursuant to the provisions hereof, to the performance by the Company of its covenants and other obligations hereunder, and to the following further conditions:

- (a) Subsequent to the execution and delivery of this Agreement and prior to the Closing Date:
 - (i) no order suspending the effectiveness of the Registration Statement shall be in effect, and no proceeding for such purpose or pursuant to Section 8A under the Securities Act shall be pending before or, to the Company's knowledge, threatened by the Commission;
 - (ii) there shall not have occurred any downgrading, nor shall any notice have been given of any intended or potential downgrading or of any review for a possible change that does not indicate the direction of the possible change, in the rating accorded any of the securities of the Company by any "nationally recognized statistical rating organization," as such term is defined in Section 3(a)(62) of the Exchange Act; and
 - (iii) there shall not have occurred any change, or any development involving a prospective change, in the condition, financial or otherwise, or in the earnings, business or operations of the Company and its subsidiaries, taken as a whole, from that set forth in the Time of Sale Prospectus that, in your judgment, is material and adverse and that makes it, in your judgment, impracticable to market the Shares on the terms and in the manner contemplated in the Time of Sale Prospectus.

(b) The Underwriters shall have received on the Closing Date a certificate, dated the Closing Date and signed by an executive officer of the Company, to the effect set forth in Section 5(a)(i) and 5(a)(ii) above and to the effect that the representations and warranties of the Company contained in this Agreement are true and correct as of the Closing Date and that the Company has complied with all of the agreements and satisfied all of the conditions on its part to be performed or satisfied hereunder on or before the Closing Date.

The officer signing and delivering such certificate may rely upon the best of his or her knowledge as to proceedings threatened.

(c) The Underwriters shall have received on the Closing Date an opinion and negative assurance letter of Latham & Watkins LLP, outside counsel for the Company, each in the form reasonably satisfactory to the Underwriters.

(d) The Underwriters shall have received on the Closing Date an opinion and negative assurance letter of Kendall Square IP Strategies, LLC, special intellectual property counsel for the Company, each in the form reasonably satisfactory to the Underwriters.

(e) The Underwriters shall have received on the Closing Date an opinion and negative assurance letter of Lando & Anastasi, LLP, special intellectual property counsel for the Company, each in the form reasonably satisfactory to the Underwriters.

(f) The Underwriters shall have received on the Closing Date an opinion and negative assurance letter of Ropes & Gray LLP, counsel for the Underwriters, dated the Closing Date, with respect to the issuance and sale of the Shares, the Registration Statement, the Prospectus and any free writing prospectus, the Time of Sale Prospectus (together with any supplement thereto) and other related matters as the Representatives may reasonably require, and the Company shall have furnished to such counsel such documents as they request for the purpose of enabling them to pass upon such matters.

The opinions of Latham & Watkins LLP, Kendall Square IP Strategies, LLC and Lando & Anastasi, LLP described in Sections 5(c), 5(d) and 5(e) above shall be rendered to the Underwriters at the request of the Company and shall so state therein.

(g) The Underwriters shall have received, on each of the date hereof and the Closing Date, a letter dated the date hereof or the Closing Date, as the case may be, in form and substance satisfactory to the Underwriters, from Ernst & Young LLP, independent public accountants, containing statements and information of the type ordinarily included in accountants' "comfort letters" to underwriters with respect to the financial statements and certain financial information contained or incorporated by reference in the Registration Statement, the Time of Sale Prospectus and the Prospectus; *provided* that the letter delivered on the Closing Date shall use a "cut-off date" not earlier than the date hereof.

(h) [Reserved]

(i) The "lock-up" agreements, each substantially in the form of Exhibit A hereto, between you and each officer, director and specified stockholders of the Company as set forth in Schedule III hereto relating to sales and certain other dispositions of shares of Common Stock or certain other securities, delivered to you on or before the date hereof, shall be in full force and effect on the Closing Date.

(j) [Reserved]

(k) The Company will deliver to each Underwriter (or its agent), if requested by the Underwriters, on the date of execution of this Agreement, a properly completed and executed Certification Regarding Beneficial Owners of Legal Entity Customers (the "**Certification**"), together with copies of identifying documentation, and the Company undertakes to provide such additional supporting documentation as each Underwriter may reasonably request in connection with the verification of the Certification.

(l) The several obligations of the Underwriters to purchase Additional Shares hereunder are subject to the delivery to you on the applicable Option Closing Date of the following:

- (i) a certificate, dated the Option Closing Date and signed by an executive officer of the Company, confirming that the certificate delivered on the Closing Date pursuant to Section 5(b) hereof remains true and correct as of such Option Closing Date;
- (ii) an opinion and negative assurance letter of Latham & Watkins LLP, outside counsel for the Company, dated the Option Closing Date, relating to the Additional Shares to be purchased on such Option Closing Date and otherwise to the same effect as the opinion required by Section 5(c) hereof;

- (iii) an opinion and negative assurance letter of Kendall Square IP Strategies, LLC, special intellectual property counsel for the Company, dated the Option Closing Date, relating to the Additional Shares to be purchased on such Option Closing Date and otherwise to the same effect as the opinion required by Section 5(d) hereof;
- (iv) an opinion and negative assurance letter of Lando & Anastasi, LLP, special intellectual property counsel for the Company, dated the Option Closing Date, relating to the Additional Shares to be purchased on such Option Closing Date and otherwise to the same effect as the opinion required by Section 5(e) hereof;
- (v) an opinion and negative assurance letter of Ropes & Gray LLP, counsel for the Underwriters, dated the Option Closing Date, relating to the Additional Shares to be purchased on such Option Closing Date and otherwise to the same effect as the opinion required by Section 5(f) hereof;
- (vi) a letter dated the Option Closing Date, in form and substance satisfactory to the Underwriters, from Ernst & Young LLP, independent public accountants, substantially in the same form and substance as the letter furnished to the Underwriters pursuant to Section 5(g) hereof; *provided* that the letter delivered on the Option Closing Date shall use a “cut-off date” not earlier than three business days prior to such Option Closing Date; and
- (vii) such other documents as you may reasonably request with respect to the good standing of the Company, the due authorization and issuance of the Additional Shares to be sold on such Option Closing Date and other matters related to the issuance of such Additional Shares.

6. *Covenants of the Company. The Company covenants with each Underwriter as follows:*

(a) To furnish to you, if requested, without charge, five signed copies of the Registration Statement (including exhibits thereto and documents incorporated by reference) and for delivery to each other Underwriter a conformed copy of the Registration Statement (without exhibits thereto but including documents incorporated by reference) and to furnish to you in New York City, without charge, prior to 10:00 a.m. New York City time on the business day next succeeding the date of this Agreement and during the period mentioned in Section 6(e) or 6(f) below, as many copies of the Time of Sale Prospectus, the Prospectus, any documents incorporated by reference therein and any supplements and amendments thereto or to the Registration Statement as you may reasonably request.

(b) Before amending or supplementing the Registration Statement, the Time of Sale Prospectus or the Prospectus, to furnish to you a copy of each such proposed amendment or supplement and not to file any such proposed amendment or supplement to which you reasonably object, and to file with the Commission within the applicable period specified in Rule 424(b) under the Securities Act any prospectus required to be filed pursuant to such rule.

(c) To furnish to you a copy of each proposed free writing prospectus to be prepared by or on behalf of, used by, or referred to by the Company and not to use or refer to any proposed free writing prospectus to which you reasonably object.

(d) Not to take any action that would result in an Underwriter or the Company being required to file with the Commission pursuant to Rule 433(d) under the Securities Act a free writing prospectus prepared by or on behalf of the Underwriter that the Underwriter otherwise would not have been required to file thereunder.

(e) If the Time of Sale Prospectus is being used to solicit offers to buy the Shares at a time when the Prospectus is not yet available to prospective purchasers and any event shall occur or condition exist as a result of which it is necessary to amend or supplement the Time of Sale Prospectus in order to make the statements therein, in the light of the circumstances, not misleading, or if any event shall occur or condition exist as a result of which the Time of Sale Prospectus conflicts with the information contained or incorporated by reference in the Registration Statement then on file, or if, in the opinion of counsel for the Underwriters, it is necessary to amend or supplement the Time of Sale Prospectus to comply with applicable law, forthwith to prepare, file with the Commission and furnish, at its own expense, to the Underwriters and to any dealer upon request, either amendments or supplements to the Time of Sale Prospectus so that the statements in the Time of Sale Prospectus as so amended or supplemented will not, in the light of the circumstances when the Time of Sale Prospectus is delivered to a prospective purchaser, be misleading or so that the Time of Sale Prospectus, as amended or supplemented, will no longer conflict with the Registration Statement, or so that the Time of Sale Prospectus, as amended or supplemented, will comply with applicable law.

(f) If, during such period after the first date of the public offering of the Shares as in the opinion of counsel for the Underwriters the Prospectus (or in lieu thereof the notice referred to in Rule 173(a) of the Securities Act) is required by law to be delivered in connection with sales by an Underwriter or dealer, any event shall occur or condition exist as a result of which it is necessary to amend or supplement the Prospectus in order to make the statements therein, in the light of the circumstances when the Prospectus (or in lieu thereof the notice referred to in Rule 173(a) of the Securities Act) is delivered to a purchaser, not misleading, or if, in the opinion of counsel for the Underwriters, it is necessary to amend or supplement the Prospectus to comply with applicable law, forthwith to prepare, file with the Commission and furnish, at its own expense, to the Underwriters and to the dealers (whose names and addresses you will furnish to the Company) to which Shares may have been sold by you on behalf of the Underwriters and to any other dealers upon request, either amendments or supplements to the Prospectus so that the statements in the Prospectus as so amended or supplemented will not, in the light of the circumstances when the Prospectus (or in lieu thereof the notice referred to in Rule 173(a) of the Securities Act) is delivered to a purchaser, be misleading or so that the Prospectus, as amended or supplemented, will comply with applicable law.

(g) To endeavor to qualify the Shares for offer and sale under the securities or Blue Sky laws of such jurisdictions as you shall reasonably request; provided, that in no event shall the Company be obligated to qualify to do business in any jurisdiction where it is not now so qualified or to take any action that would subject it to service of process in suits, other than those arising out of the offering or sale of the Shares, in any jurisdiction where it is now so subject.

(h) To make generally available to the Company's security holders and to you as soon as practicable an earnings statement covering a period of at least twelve months beginning with the first fiscal quarter of the Company occurring after the date of this Agreement which shall satisfy the provisions of Section 11(a) of the Securities Act and the rules and regulations of the Commission thereunder.

(i) Whether or not the transactions contemplated in this Agreement are consummated or this Agreement is terminated, to pay or cause to be paid all expenses incident to the performance of its obligations under this Agreement, including: (i) the fees, disbursements and expenses of the Company's counsel and the Company's accountants in connection with the registration and delivery of the Shares under the Securities Act and all other fees or expenses in connection with any preliminary prospectus, the Time of Sale Prospectus, the Prospectus, any free writing prospectus prepared by or on behalf of, used by, or referred to by the Company and amendments and supplements to any of the foregoing, including all printing costs associated therewith, and the mailing and delivering of copies thereof to the Underwriters and dealers, in the quantities hereinabove specified, (ii) all costs and expenses related to the transfer and delivery of the Shares to the Underwriters, including any transfer taxes payable thereon, (iii) the cost of printing or producing any Blue Sky or Legal Investment memorandum in connection with the offer and sale of the Shares under state securities laws and all expenses in connection with the qualification of the Shares for offer and sale under state securities laws as provided in Section 6(g) hereof, including filing fees and the reasonable fees and disbursements of counsel for the Underwriters (with such fees and disbursements not to exceed \$5,000) in connection with such qualification and in connection with the Blue Sky or Legal Investment memorandum, (iv) all filing fees and the reasonable fees and disbursements of counsel to the Underwriters (with such fees and disbursements not to exceed \$25,000) incurred in connection with the review and qualification of the offering of the Shares by the Financial Industry Regulatory Authority, (v) all costs and expenses incident to listing the Shares on the Nasdaq Global Market, (vi) the cost of printing certificates representing the Shares, (vii) the costs and charges of any transfer agent, registrar or depository, (viii) the costs and expenses of the Company relating to investor presentations on any "road show" undertaken in connection with the marketing of the offering of the Shares, including, without limitation, expenses associated with the preparation or dissemination of any electronic road show, expenses associated with the production of road show slides and graphics, fees and expenses of any consultants engaged in connection with the road show presentations with the prior approval of the Company, travel and lodging expenses of the representatives and officers of the Company and any such consultants, and 50% of the cost of any aircraft chartered in connection with the road show, provided that no aircraft shall be chartered without the prior consent of the Company, and provided further that, for the avoidance of doubt, the Underwriters shall pay their own travel expenses (including lodging, transportation, meals and entertainment), (ix) the document production charges and expenses associated with printing this Agreement and (x) all other costs and expenses incident to the performance of the obligations of the Company hereunder for which provision is not otherwise made in this Section. It is understood, however, that except as provided in this Section, Section 8 entitled "Indemnity and Contribution" and the last paragraph of Section 10 below, the Underwriters will pay all of their costs and expenses, including fees and disbursements of their counsel, stock transfer taxes payable on resale of any of the Shares by them and any advertising expenses connected with any offers they may make.

The Company also covenants with each Underwriter that, without the prior written consent of Cowen and Company, LLC on behalf of the Underwriters, it will not, during the period ending 90 days after the date of the Prospectus (the "**Restricted Period**"), (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock or (2) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the Common Stock, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of Common Stock or such other securities, in cash or otherwise or (3) except as otherwise permitted herein, file any registration statement with the Commission relating to the offering of any shares of Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock.

The restrictions contained in the preceding paragraph shall not apply to (1) the Shares to be sold hereunder, (2) the issuance by the Company of shares of Common Stock, or any securities convertible into, or exercisable for, shares of Common Stock, pursuant to any employee stock option plan, incentive plan, employee stock purchase plan or stock ownership plan of the Company in effect on the date hereof and disclosed in the Prospectus, (3) the issuance by the Company of shares of Common Stock issuable upon the conversion of securities outstanding on the date hereof, (4) the filing of one or more registration statements on Form S-8, or (5) the offer, issuance and sale of shares of Common Stock or any securities convertible into, or exercisable, or exchangeable for, shares of Common Stock in connection with any acquisition or strategic investment (including any joint venture, strategic alliance or partnership) so long as (x) the aggregate number of shares of Common Stock issued or issuable does not exceed 5% of the number of shares of Common Stock outstanding immediately after the issuance and sale of the securities, and (y) each recipient of any such shares or other securities agrees to restrictions on the resale of securities that are consistent with the lock-up letters described in Section 5(i) hereof for the remainder of the Restricted Period.

7. *Covenants of the Underwriters.* Each Underwriter, severally and not jointly, covenants with the Company not to take any action that would result in the Company being required to file with the Commission under Rule 433(d) under the Securities Act a free writing prospectus prepared by or on behalf of such Underwriter that otherwise would not be required to be filed by the Company thereunder, but for the action of the Underwriter.

8. *Indemnity and Contribution.* (a) The Company agrees to indemnify and hold harmless each Underwriter, each person, if any, who controls any Underwriter within the meaning of either Section 15 of the Securities Act or Section 20 of the Exchange Act and each affiliate of any Underwriter within the meaning of Rule 405 under the Securities Act from and against any and all losses, claims, damages and liabilities (including, without limitation, any legal or other expenses reasonably incurred in connection with defending or investigating any such action or claim) caused by any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement or any amendment thereof, any preliminary prospectus, the Time of Sale Prospectus or any amendment or supplement thereto, any issuer free writing prospectus as defined in Rule 433(h) under the Securities Act, any Company information that the Company has filed, or is required to file, pursuant to Rule 433(d) under the Securities Act, any road show, or the Prospectus or any amendment or supplement thereto, or caused by any omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading, except insofar as such losses, claims, damages or liabilities are caused by any such untrue statement or omission or alleged untrue statement or omission based upon information relating to any Underwriter furnished to the Company in writing by such Underwriter through you expressly for use therein, it being understood and agreed that the only such information furnished by the Underwriters through the Representatives consists of the information described as such in paragraph (b) below.

(b) Each Underwriter agrees, severally and not jointly, to indemnify and hold harmless the Company, its directors, its officers who signed the Registration Statement and each person, if any, who controls the Company within the meaning of either Section 15 of the Securities Act or Section 20 of the Exchange Act to the same extent as the foregoing indemnity from the Company to such Underwriter, but only with reference to information relating to such Underwriter furnished to the Company in writing by such Underwriter through you expressly for use in the Registration Statement, any preliminary prospectus, the Time of Sale Prospectus, any issuer free writing prospectus, road show or the Prospectus or any amendment or supplement thereto, it being understood and agreed that the only such information consists of the following information in the Prospectus: the concession figures appearing in the 3rd paragraph under the caption "Underwriters" and the information relating to stabilizing transactions and passive market making contained in the 11th paragraph under the caption "Underwriters."

(c) In case any proceeding (including any governmental investigation) shall be instituted involving any person in respect of which indemnity may be sought pursuant to Section 8(a) or 8(b), such person (the “**indemnified party**”) shall promptly notify the person against whom such indemnity may be sought (the “**indemnifying party**”) in writing and the indemnifying party, upon request of the indemnified party, shall retain counsel reasonably satisfactory to the indemnified party to represent the indemnified party and any others the indemnifying party may designate in such proceeding and shall pay the fees and disbursements of such counsel related to such proceeding. In any such proceeding, any indemnified party shall have the right to retain its own counsel, but the fees and expenses of such counsel shall be at the expense of such indemnified party unless (i) the indemnifying party and the indemnified party shall have mutually agreed to the retention of such counsel or (ii) the named parties to any such proceeding (including any impleaded parties) include both the indemnifying party and the indemnified party and representation of both parties by the same counsel would be inappropriate due to actual or potential differing interests between them. It is understood that the indemnifying party shall not, in respect of the legal expenses of any indemnified party in connection with any proceeding or related proceedings in the same jurisdiction, be liable for the fees and expenses of more than one separate firm (in addition to any local counsel) for all such indemnified parties and that all such fees and expenses shall be reimbursed as they are incurred. Such firm shall be designated in writing by the Representatives, in the case of parties indemnified pursuant to Section 8(a), and by the Company, in the case of parties indemnified pursuant to Section 8(b). The indemnifying party shall not be liable for any settlement of any proceeding effected without its written consent, but if settled with such consent or if there be a final judgment for the plaintiff, the indemnifying party agrees to indemnify the indemnified party from and against any loss or liability by reason of such settlement or judgment. Notwithstanding the foregoing sentence, if at any time an indemnified party shall have requested an indemnifying party to reimburse the indemnified party for fees and expenses of counsel as contemplated by the second and third sentences of this paragraph, the indemnifying party agrees that it shall be liable for any settlement of any proceeding effected without its written consent if (i) such settlement is entered into more than 30 days after receipt by such indemnifying party of the aforesaid request and (ii) such indemnifying party shall not have reimbursed the indemnified party in accordance with such request prior to the date of such settlement. No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement of any pending or threatened proceeding in respect of which any indemnified party is or could have been a party and indemnity could have been sought hereunder by such indemnified party, unless such settlement includes an unconditional release of such indemnified party from all liability on claims that are the subject matter of such proceeding and 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) To the extent the indemnification provided for in Section 8(a) or 8(b) is unavailable to an indemnified party or insufficient in respect of any losses, claims, damages or liabilities referred to therein, then each indemnifying party under such paragraph, in lieu of indemnifying such indemnified party thereunder, shall contribute to the amount paid or payable by such indemnified party as a result of such losses, claims, damages or liabilities (i) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other hand from the offering of the Shares or (ii) if the allocation provided by clause 8(d)(i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause 8(d)(i) above but also the relative fault of the Company on the one hand and of the Underwriters on the other hand in connection with the statements or omissions that resulted in such losses, claims, damages or liabilities, as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriters on the other hand in connection with the offering of the Shares shall be deemed to be in the same respective proportions as the net proceeds from the offering of the Shares (before deducting expenses) received by the Company and the total underwriting discounts and commissions received by the Underwriters, in each case as set forth in the table on the cover of the Prospectus, bear to the aggregate Public Offering Price of the Shares. The relative fault of the Company on the one hand and the Underwriters on the other hand shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company or by the Underwriters and the parties’ relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The Underwriters’ respective obligations to contribute pursuant to this Section 8 are several in proportion to the respective number of Shares they have purchased hereunder, and not joint.

(e) The Company and the Underwriters agree that it would not be just or equitable if contribution pursuant to this Section 8 were determined by *pro rata* allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation that does not take account of the equitable considerations referred to in Section 8(d). The amount paid or payable by an indemnified party as a result of the losses, claims, damages and liabilities referred to in Section 8(d) shall be deemed to include, subject to the limitations set forth above, any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim. Notwithstanding the provisions of this Section 8, no Underwriter shall be required to contribute any amount in excess of the amount by which the total price at which the Shares underwritten by it and distributed to the public were offered to the public exceeds the amount of any damages that such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The remedies provided for in this Section 8 are not exclusive and shall not limit any rights or remedies which may otherwise be available to any indemnified party at law or in equity.

(f) The indemnity and contribution provisions contained in this Section 8 and the representations, warranties and other statements of the Company contained in this Agreement shall remain operative and in full force and effect regardless of (i) any termination of this Agreement, (ii) any investigation made by or on behalf of any Underwriter, any person controlling any Underwriter or any affiliate of any Underwriter or by or on behalf of the Company, its officers or directors or any person controlling the Company and (iii) acceptance of and payment for any of the Shares.

9. *Termination.* The Underwriters may terminate this Agreement by notice given by you to the Company, if after the execution and delivery of this Agreement and prior to the Closing Date (i) trading generally shall have been suspended or materially limited on, or by, as the case may be, any of the New York Stock Exchange, the NYSE American, the Nasdaq Global Market, the Chicago Board of Options Exchange, the Chicago Mercantile Exchange or the Chicago Board of Trade, (ii) trading of any securities of the Company shall have been suspended on any exchange or in any over-the-counter market, (iii) a material disruption in securities settlement, payment or clearance services in the United States shall have occurred, (iv) any moratorium on commercial banking activities shall have been declared by Federal or New York State authorities or (v) there shall have occurred any outbreak or escalation of hostilities, or any change in financial markets or any calamity or crisis that, in your judgment, is material and adverse and which, singly or together with any other event specified in this clause (v), makes it, in your judgment, impracticable or inadvisable to proceed with the offer, sale or delivery of the Shares on the terms and in the manner contemplated in the Time of Sale Prospectus or the Prospectus.

10. *Effectiveness; Defaulting Underwriters.* This Agreement shall become effective upon the execution and delivery hereof by the parties hereto.

If, on the Closing Date or an Option Closing Date, as the case may be, any one or more of the Underwriters shall fail or refuse to purchase Shares that it has or they have agreed to purchase hereunder on such date, and the aggregate number of Shares which such defaulting Underwriter or Underwriters agreed but failed or refused to purchase is not more than one-tenth of the aggregate number of the Shares to be purchased on such date, the other Underwriters shall be obligated severally in the proportions that the number of Firm Shares set forth opposite their respective names in Schedule I bears to the aggregate number of Firm Shares set forth opposite the names of all such non-defaulting Underwriters, or in such other proportions as you may specify, to purchase the Shares which such defaulting Underwriter or Underwriters agreed but failed or refused to purchase on such date; *provided* that in no event shall the number of Shares that any Underwriter has agreed to purchase pursuant to this Agreement be increased pursuant to this Section 10 by an amount in excess of one-ninth of such number of Shares without the written consent of such Underwriter. If, on the Closing Date, any Underwriter or Underwriters shall fail or refuse to purchase Firm Shares and the aggregate number of Firm Shares with respect to which such default occurs is more than one-tenth of the aggregate number of Firm Shares to be purchased on such date, and arrangements satisfactory to you and the Company for the purchase of such Firm Shares are not made within 36 hours after such default, this Agreement shall terminate without liability on the part of any non-defaulting Underwriter or the Company. In any such case either you or the Company shall have the right to postpone the Closing Date, but in no event for longer than seven days, in order that the required changes, if any, in the Registration Statement, in the Time of Sale Prospectus, in the Prospectus or in any other documents or arrangements may be effected. If, on an Option Closing Date, any Underwriter or Underwriters shall fail or refuse to purchase Additional Shares and the aggregate number of Additional Shares with respect to which such default occurs is more than one-tenth of the aggregate number of Additional Shares to be purchased on such Option Closing Date, the non-defaulting Underwriters shall have the option to (i) terminate their obligation hereunder to purchase the Additional Shares to be sold on such Option Closing Date or (ii) purchase not less than the number of Additional Shares that such non-defaulting Underwriters would have been obligated to purchase in the absence of such default. Any action taken under this paragraph shall not relieve any defaulting Underwriter from liability in respect of any default of such Underwriter under this Agreement.

If this Agreement shall be terminated by the Underwriters, or any of them, because of any failure or refusal on the part of the Company to comply with the terms or to fulfill any of the conditions of this Agreement, or if for any reason the Company shall be unable to perform its obligations under this Agreement, the Company will reimburse the Underwriters or such Underwriters as have so terminated this Agreement with respect to themselves, severally, for all out-of-pocket expenses (including the fees and disbursements of their counsel) reasonably incurred by such Underwriters in connection with this Agreement or the offering contemplated hereunder.

11. *Entire Agreement.* (a) This Agreement, together with any contemporaneous written agreements and any prior written agreements (to the extent not superseded by this Agreement) that relate to the offering of the Shares, represents the entire agreement between the Company and the Underwriters with respect to the preparation of any preliminary prospectus, the Time of Sale Prospectus, the Prospectus, the conduct of the offering, and the purchase and sale of the Shares.

(b) The Company acknowledges that in connection with the offering of the Shares: (i) the Underwriters have acted at arm's length, are not agents of, and owe no fiduciary duties to, the Company or any other person, (ii) the Underwriters owe the Company only those duties and obligations set forth in this Agreement and prior written agreements (to the extent not superseded by this Agreement), if any, (iii) the Underwriters may have interests that differ from those of the Company and (iv) none of the activities of the Underwriters in connection with the transactions contemplated herein constitutes a recommendation, investment advice, or solicitation of any action by the Underwriters with respect to any entity or natural person. The Company waives to the full extent permitted by applicable law any claims it may have against the Underwriters arising from an alleged breach of fiduciary duty in connection with the offering of the Shares.

12. *Recognition of the U.S. Special Resolution Regimes.* (a) In the event that any Underwriter that is a Covered Entity becomes subject to a proceeding under a U.S. Special Resolution Regime, the transfer from such Underwriter of this Agreement, and any interest and obligation in or under this Agreement, will be effective to the same extent as the transfer would be effective under the U.S. Special Resolution Regime if this Agreement, and any such interest and obligation, were governed by the laws of the United States or a state of the United States.

(b) In the event that any Underwriter that is a Covered Entity or a BHC Act Affiliate of such Underwriter becomes subject to a proceeding under a U.S. Special Resolution Regime, Default Rights under this Agreement that may be exercised against such Underwriter are permitted to be exercised to no greater extent than such Default Rights could be exercised under the U.S. Special Resolution Regime if this Agreement were governed by the laws of the United States or a state of the United States.

For purposes of this Section a “**BHC Act Affiliate**” has the meaning assigned to the term “affiliate” in, and shall be interpreted in accordance with, 12 U.S.C. § 1841(k). “**Covered Entity**” means any of the following: (i) a “covered entity” as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 252.82(b); (ii) a “covered bank” as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 47.3(b); or (iii) a “covered FSI” as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 382.2(b). “**Default Right**” has the meaning assigned to that term in, and shall be interpreted in accordance with, 12 C.F.R. §§ 252.81, 47.2 or 382.1, as applicable. “**U.S. Special Resolution Regime**” means each of (i) the Federal Deposit Insurance Act and the regulations promulgated thereunder and (ii) Title II of the Dodd-Frank Wall Street Reform and Consumer Protection Act and the regulations promulgated thereunder.

13. *Counterparts.* This Agreement may be signed in two or more counterparts, each of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument.

14. *Applicable Law.* This Agreement shall be governed by and construed in accordance with the internal laws of the State of New York.

15. *Headings.* The headings of the sections of this Agreement have been inserted for convenience of reference only and shall not be deemed a part of this Agreement.

16. *Notices.* All communications hereunder shall be in writing and effective only upon receipt and if to the Underwriters shall be delivered, mailed or sent to you in care of Cowen and Company, LLC, Attention: Head of Equity Capital Markets, Fax 646-562-1249, with a copy to the General Counsel, Fax: 646-562-1124; Stifel, Nicolaus & Company, Incorporated, 237 Park Avenue, 8th Floor, New York, New York 10017; Wells Fargo Securities, LLC, 500 West 33rd Street, New York, New York 10001, Attention: Equity Syndicate Department (fax no: (212) 214-5918); and, in each case, with a copy (which copy shall not constitute notice) to Ropes & Gray LLP, Prudential Tower, 800 Boylston Street, Boston, Massachusetts 02199, Attention: Thomas J. Danielski; and if to the Company, shall be delivered, mailed or sent to 222 Berkeley Street, 12th Floor, Boston, Massachusetts 02116, attention of the Legal Department, with a copy (which copy shall not constitute notice) to Latham & Watkins LLP, 200 Clarendon Street, Boston, Massachusetts 02116, Attention: Peter Handrinos & Wesley Holmes.

[Remainder of page intentionally left blank]

Very truly yours,

RHYTHM PHARMACEUTICALS, INC.

By: /s/ Hunter Smith

Name: Hunter Smith

Title: CFO

[Signature Page to Underwriting Agreement]

Accepted as of the date hereof

Cowen and Company, LLC
Stifel, Nicolaus & Company, Incorporated
Wells Fargo Securities, LLC

Acting severally on behalf of themselves and the several Underwriters named
in Schedule I hereto.

By: Cowen and Company, LLC

By: /s/ Mariel A. Healy

Name: Mariel A. Healy

Title: Managing Director

By: Stifel, Nicolaus & Company, Incorporated

By: /s/ Seth Rubin

Name: Seth Rubin

Title: Sr Managing Director

By: Wells Fargo Securities, LLC

By: /s/ David Bohn

Name: David Bohn

Title: Managing Director

[Signature Page to Underwriting Agreement]

SCHEDULE I

Underwriter	Number of Firm Shares To Be Purchased
Cowen and Company, LLC	1,992,000
Stifel, Nicolaus & Company, Incorporated	1,512,000
Wells Fargo Securities, LLC	1,056,000
Ladenburg Thalmann & Co. Inc.	240,000
Total:	<u>4,800,000</u>

SCHEDULE II

Time of Sale Prospectus

1. Base Prospectus dated November 15, 2021
 2. Preliminary Prospectus Supplement dated September 14, 2022
 3. The information set forth on the pricing term sheet attached hereto as Exhibit B
-

SCHEDULE III

New Enterprise Associates 13, L.P.

NEA Ventures 2009, L.P.

David Meeker

Hunter Smith

Pamela Cramer

Joseph Shulman

Jennifer Chien

Yann Mazabraud

Jennifer Good

Edward Mathers

Christophe Jean

David McGirr

Stuart Arbuckle

Lynn Tetrault

Camille Bedrosian

FORM OF LOCK-UP LETTER

September __, 2022

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

c/o Stifel, Nicolaus & Company, Incorporated
787 7th Avenue, 11th Floor
New York, New York 10019

c/o Wells Fargo Securities, LLC
500 West 33rd Street, 14th Floor,
New York, New York 10001

Ladies and Gentlemen:

This letter is being delivered to you in connection with the proposed Underwriting Agreement (the “**Underwriting Agreement**”), between Rhythm Pharmaceuticals, Inc., a Delaware corporation, including any predecessor or successor company, as the case may be (the “**Company**”), and each of you as representatives (the “**Representatives**”) of a group of Underwriters named therein (the “**Underwriters**”), relating to an underwritten public offering of shares of common stock (“**Common Stock**”), of the Company (the “**Offering**”).

To induce the Underwriters to continue their efforts in connection with the Offering, the undersigned hereby agrees that, without the prior written consent of Cowen and Company, LLC on behalf of the Underwriters, it will not, and will not publicly disclose an intention to, during the period commencing on the date hereof and ending [90][30] days after the date of the final prospectus supplement (the “**Lock-up Period**”) relating to the Offering, (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock beneficially owned (as such term is used in Rule 13d-3 of the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”), by the undersigned or any other securities so owned convertible into or exercisable or exchangeable for Common Stock or (2) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the Common Stock, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of Common Stock or such other securities, in cash or otherwise.

The provisions of the immediately preceding paragraph shall not apply to (i) the sale of shares of Common Stock by the undersigned to the Underwriters pursuant to the Underwriting Agreement, (ii) transfers of shares of capital stock of the Company or any securities convertible into, or exercisable or exchangeable for such capital stock as a bona fide gift or gifts, (iii) transfers or dispositions of shares of capital stock of the Company or any securities convertible into, or exercisable or exchangeable for such capital stock to any trust for the direct or indirect benefit of the undersigned or the immediate family of the undersigned in transactions not involving a disposition for value; (iv) transfers or dispositions of shares of capital stock of the Company or any securities convertible into, or exercisable or exchangeable for such capital stock to any corporation, partnership, limited liability company or other entity all of the beneficial ownership interests of which are held by the undersigned or the immediate family of the undersigned in a transaction not involving a disposition for value; (v) transfers or dispositions of shares of capital stock of the Company or any securities convertible into, or exercisable or exchangeable for such capital stock by will, other testamentary document or intestate succession to the legal representative, heir, beneficiary or a member of the immediate family of the undersigned; or (vi) distributions of shares of capital stock of the Company or any securities convertible into, or exercisable or exchangeable for such capital stock to partners, members or stockholders of the undersigned; *provided*, that in the case of any transfer, disposition or distribution pursuant to clause (ii), (iii), (iv), (v) or (vi), each transferee, donee or distributee shall execute and deliver to the Representatives a lock-up letter in the form of this letter; *and provided further*, that in the case of any transfer, disposition or distribution pursuant to clause (ii), (iii), (iv) or (vi), any filing by any party (donor, donee, transferor or transferee) under the Exchange Act reporting a reduction in the beneficial ownership of Common Stock held by the undersigned shall indicate by footnote disclosure or otherwise the nature of the transfer or disposition and no other public announcement shall be required or made voluntarily in connection with such transfer, disposition or distribution. For purposes of this letter, “immediate family” shall mean any relationship by blood, marriage, domestic partnership, or adoption, not more remote than first cousin.

Furthermore, notwithstanding the restrictions imposed by this letter, the undersigned may, without the prior written consent of Cowen and Company, LLC, (a) exercise an option to purchase shares of Common Stock or receive shares of Common Stock upon vesting of any restricted stock units granted under any equity incentive plan or equity purchase plan of the Company which is described in the registration statement relating to the Offering, *provided* that the underlying equity securities shall continue to be subject to the restrictions on transfer set forth in this letter, (b) sell or transfer shares of Common Stock pursuant to any contract, instruction or plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of Common Stock entered into by the undersigned prior to the date hereof and such plan has been provided to the Representatives, *provided* that such plan is not modified during the Lock-up Period, (c) establish a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of shares of Common Stock, *provided* that such plan does not provide for any transfers of Common Stock during the Lock-up Period, (d) transfer shares of Common Stock to the Company in connection with the termination of the undersigned's employment with the Company, and (e) transfer or dispose of shares of Common Stock purchased in the Offering from the Underwriters (other than any issuer-directed shares of Common Stock purchased in the Offering by an officer or director of the Company) or on the open market after the completion of the Offering; *provided* that, in the case of clauses (b) any filing required under the Exchange Act shall indicate by footnote disclosure or otherwise that the sale or transfer was made pursuant to a trading plan established pursuant to Rule 10b5-1 and, in the case of clauses (c), (d) and (e) above, no filing with the Securities and Exchange Commission or other public announcement shall be required or voluntarily made by the undersigned or any other person in connection therewith, in each case during the Lock-up Period, other than in the case of clause (d) to the extent such filing is required and the employment termination is footnoted or otherwise disclosed therein.

The undersigned acknowledges and agrees that the Underwriters have not provided any recommendation or investment advice nor have the Underwriters solicited any action from the undersigned with respect to the Offering and the undersigned has consulted their own legal, accounting, financial, regulatory and tax advisors to the extent deemed appropriate. The undersigned further acknowledges and agrees that, although the Underwriters may provide certain Regulation Best Interest and Form CRS disclosures or other related documentation to you in connection with the Offering, the Underwriters are not making a recommendation to you to participate in the Offering or sell any shares of Common Stock at the price determined in the Offering, and nothing set forth in such disclosures or documentation is intended to suggest that any Underwriter is making such a recommendation.

This letter shall automatically terminate and the undersigned shall be released from all obligations under this letter upon the earliest to occur, if any, of (i) either the Company, on the one hand, or the Representatives, on the other hand, advising the other in writing, prior to the execution of the Underwriting Agreement, that they have determined not to proceed with the Offering, (ii) the Underwriting Agreement being terminated prior to the Closing Date (as defined in the Underwriting Agreement), (iii) the registration statement filed with the SEC with respect to the Offering being withdrawn and (iv) September 30, 2022, in the event that the Underwriting Agreement has not been executed by such date.

This letter shall be governed by and construed in accordance with the laws of the State of New York.

[Signature Page Follows]

Yours very truly,

Signature

Printed Name of Person Signing

(Indicate capacity of person signing if signing as custodian or trustee, or on behalf of an entity)

[Signature Page to Lock-Up Agreement]

Rhythm Pharmaceuticals, Inc.
4,800,000 Shares

Issuer:	Rhythm Pharmaceuticals, Inc.
Symbol:	RYTM
Size (Pre-Greenshoe):	\$124,800,000
Total Firm Shares Offered by Issuer:	4,800,000
Greenshoe Shares Offered by Issuer:	720,000
Price to Public:	\$26.00
Trade Date:	September 15, 2022
Closing Date:	September 19, 2022
CUSIP No:	76243J105
Underwriters:	Cowen and Company, LLC Stifel, Nicolaus & Company, Incorporated Wells Fargo Securities, LLC Ladenburg Thalmann & Co. Inc.

The issuer has filed a registration statement (and a preliminary prospectus supplement) with the Securities and Exchange Commission (the "SEC") for the offering to which this communication relates, which has become effective by rule of the SEC. A final prospectus supplement relating to the offering will be filed with the SEC. Copies of the final prospectus supplement may be obtained, when available, from Cowen and Company, LLC, c/o Broadridge Financial Solutions, 1155 Long Island Avenue, Edgewood, NY 11717, Attention: Prospectus Department, by telephone at (833) 297-2926 or by email at PostSaleManualRequests@broadridge.com; Stifel, Nicolaus & Company, Incorporated, Attention: Syndicate, One Montgomery Street, Suite 3700, San Francisco, California 94104, by telephone at 415-364-2720 or by email at syndprospectus@stifel.com, or Wells Fargo Securities, LLC, Attention: Equity Syndicate Department, 500 West 33rd Street, New York, New York 10001, at 833-690-2713 or email a request to emclientsupport@wellsfargo.com.

This communication shall not constitute an offer to sell or the solicitation of any offer to buy, nor shall there be any sale of the securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to the registration or qualification under the securities law of any such jurisdiction.

200 Clarendon Street
 Boston, Massachusetts 02116
 Tel: +1.617.948.6000 Fax: +1.617.948.6001
 www.lw.com

LATHAM & WATKINS LLP

September 15, 2022

FIRM / AFFILIATE OFFICES

Austin	Milan
Beijing	Munich
Boston	New York
Brussels	Orange County
Century City	Paris
Chicago	Riyadh
Dubai	San Diego
Düsseldorf	San Francisco
Frankfurt	Seoul
Hamburg	Shanghai
Hong Kong	Silicon Valley
Houston	Singapore
London	Tel Aviv
Los Angeles	Tokyo
Madrid	Washington, D.C.

Rhythm Pharmaceuticals, Inc.
 222 Berkeley Street, 12th Floor
 Boston, MA 02116

Re: Registration Statement No. 333-260689; 5,520,000 shares of Common Stock, par value \$0.001 per share

To the addressee set forth above:

We have acted as special counsel to Rhythm Pharmaceuticals, Inc., a Delaware corporation (the “*Company*”), in connection with the proposed issuance of up to 5,520,000 shares of common stock, \$0.001 par value per share (“*Common Stock*”), including up to 720,000 shares of Common Stock issuable upon exercise of the underwriters’ option to purchase additional shares (the “*Shares*”). The Shares are included in 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 2, 2021 (Registration No. 333-260689) (the “*Registration Statement*”), and are being offered pursuant to a base prospectus dated November 15, 2021 (the “*Base Prospectus*”) and a prospectus supplement dated September 14, 2022 filed with the Commission pursuant to Rule 424(b) under the Act (together with the Base Prospectus, the “*Prospectus*”). 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 the 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 form of underwriting agreement most recently filed as an exhibit to the Registration Statement, 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 the Company will comply with all applicable notice requirements regarding uncertificated shares provided in the General Corporation Law of the State of Delaware.

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 September 15, 2022, 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.

Sincerely,

/s/ Latham & Watkins LLP
