

**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): March 20, 2023

Karuna Therapeutics, Inc.

(Exact name of Registrant as Specified in Its Charter)

Delaware
(State or Other Jurisdiction
of Incorporation)

001-38958
(Commission File Number)

27-0605902
(IRS Employer
Identification No.)

99 High Street, Floor 26
Boston, Massachusetts
(Address of Principal Executive Offices)

02110
(Zip Code)

Registrant's Telephone Number, Including Area Code: 857 449-2244

(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, par value \$0.0001	KRTX	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 1.01 Entry into a Material Definitive Agreement.

On March 21, 2023, Karuna Therapeutics, Inc. (the “Company”) entered into an Underwriting Agreement (the “Underwriting Agreement”) with Goldman Sachs & Co. LLC, J.P. Morgan Securities LLC and Morgan Stanley & Co. LLC, as representatives of the underwriters named therein (collectively, the “Underwriters”), relating to the public offering (the “Offering”) of 2,479,391 shares of the Company’s common stock, \$0.0001 par value per share (the “Common Stock”), at a price to the public of \$161.33 per share (the “Offering Price”), less underwriting discounts and commissions. The net proceeds to the Company from the sale of the Common Stock, after deducting the underwriting discounts and commissions and other estimated offering expenses payable by the Company, will be approximately \$379.5 million. The Company also granted the Underwriters a 30-day option to purchase up to an additional 371,908 shares of Common Stock at the Offering Price (the “Option Shares”). On March 22, 2023, the Underwriters exercised in full their option to purchase the Option Shares. Giving effect to the sale of the Option Shares, the aggregate net proceeds to the Company, after deducting underwriting discounts and commissions and other estimated offering expenses payable by the Company, will be approximately \$436.5 million. The Offering, including the sale of the Option Shares, is expected to close on March 24, 2023.

The Offering was made pursuant to the Company’s effective shelf registration statement on Form S-3ASR (File No. 333-239657), including the prospectus dated July 2, 2020, as supplemented by a prospectus supplement dated March 21, 2023, filed on March 22, 2023.

In the Underwriting Agreement, the Company makes customary representations, warranties and covenants and also agrees to indemnify the Underwriters against certain liabilities, including liabilities under the Securities Act of 1933, as amended, or to contribute to payments that the Underwriters may be required to make because of such liabilities. The foregoing is only a brief description of the terms of the Underwriting Agreement, does not purport to be a complete description of the rights and obligations of the parties thereunder, and is qualified in its entirety by reference to the Underwriting Agreement that is filed as Exhibit 1.1 to this Current Report on Form 8-K and incorporated herein by reference. The legal opinion of Goodwin Procter LLP relating to the legality of the issuance and sale of the shares in the Offering is attached as Exhibit 5.1 to this Current Report on Form 8-K.

Item 8.01 Other Events.

On March 20, 2023, the Company announced the commencement of the Offering, and on March 21, 2023, the Company announced the pricing of the Offering. Copies of the press releases announcing the commencement and the pricing of the Offering are attached to this Current Report on Form 8-K as Exhibits 99.1 and 99.2, respectively, and are each incorporated herein by reference.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

1.1	<u>Underwriting Agreement, dated as of March 21, 2023, among Karuna Therapeutics, Inc. and Goldman Sachs & Co. LLC, J.P. Morgan Securities LLC, and Morgan Stanley & Co. LLC as representatives of the underwriters named therein</u>
5.1	<u>Opinion of Goodwin Procter LLP</u>
23.1	<u>Consent of Goodwin Procter LLP (included in Exhibit 5.1)</u>
99.1	<u>Press Release issued by Karuna Therapeutics, Inc., dated March 20, 2023</u>
99.2	<u>Press Release issued by Karuna Therapeutics, Inc., dated March 21, 2023</u>
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.

KARUNA THERAPEUTICS, INC.

Date: March 22, 2023

By: /s/ Troy Ignelzi
Troy Ignelzi
Chief Financial Officer

**Karuna Therapeutics, Inc.
Common Stock, par value \$0.0001 per share**

Underwriting Agreement

March 21, 2023

Goldman Sachs & Co. LLC
J.P. Morgan Securities LLC
Morgan Stanley & Co. LLC

As representatives (the "Representatives") of the several Underwriters named in Schedule I hereto

c/o Goldman Sachs & Co. LLC
200 West Street
New York, New York 10282

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

c/o Morgan Stanley & Co. LLC
1585 Broadway
New York, NY 10036

Ladies and Gentlemen:

Karuna Therapeutics, Inc., a Delaware corporation (the "Company"), proposes, subject to the terms and conditions stated in this agreement (this "Agreement"), to issue and sell to the several Underwriters named in Schedule I hereto (the "Underwriters") for whom you are acting as representatives (the "Representatives") an aggregate of 2,479,391 shares (the "Firm Shares") and, at the election of the Underwriters, up to 371,908 additional shares (the "Optional Shares") of common stock, par value \$0.0001 per share ("Stock"), of the Company (the Firm Shares and the Optional Shares that the Underwriters elect to purchase pursuant to Section 2 hereof being collectively called the "Shares").

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

(a) An “automatic shelf registration statement” as defined under Rule 405 under the Securities Act of 1933, as amended (the “Act”) on Form S-3 (File No. 333-239657) in respect of the Shares has been filed with the Securities and Exchange Commission (the “Commission”) not earlier than three years prior to the date hereof; such registration statement, and any post-effective amendment thereto, became effective on filing; and no stop order suspending the effectiveness of such registration statement or any part thereof has been issued and no proceeding for that purpose has been initiated or threatened by the Commission, and no notice of objection of the Commission to the use of such registration statement or any post-effective amendment thereto pursuant to Rule 401(g)(2) under the Act has been received by the Company (the base prospectus filed as part of such registration statement, in the form in which it has most recently been filed with the Commission on or prior to the date of this Agreement, is hereinafter called the “Basic Prospectus”; any preliminary prospectus (including any preliminary prospectus supplement) relating to the Shares filed with the Commission pursuant to Rule 424(b) under the Act is hereinafter called a “Preliminary Prospectus”; the various parts of such registration statement, including all exhibits thereto but excluding Form T-1 and including any prospectus supplement relating to the Shares that is filed with the Commission and deemed by virtue of Rule 430B to be part of such registration statement, each as amended at the time such part of the registration statement became effective, are hereinafter collectively called the “Registration Statement”; the Basic Prospectus, as amended and supplemented immediately prior to the Applicable Time (as defined in Section 1(c) hereof), is hereinafter called the “Pricing Prospectus”; the form of the final prospectus relating to the Shares filed with the Commission pursuant to Rule 424(b) under the Act in accordance with Section 5(a) hereof is hereinafter called the “Prospectus”; any reference herein to the Basic Prospectus, the Pricing Prospectus, any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include the documents incorporated by reference therein pursuant to Item 12 of Form S-3 under the Act, as of the date of such prospectus; any reference to any amendment or supplement to the Basic Prospectus, any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include any post-effective amendment to the Registration Statement, any prospectus supplement relating to the Shares filed with the Commission pursuant to Rule 424(b) under the Act and any documents filed under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and incorporated therein, in each case after the date of the Basic Prospectus, such Preliminary Prospectus, or the Prospectus, as the case may be; any reference to any amendment to the Registration Statement shall be deemed to refer to and include any annual report of the Company filed pursuant to Section 13(a) or 15(d) of the Exchange Act after the effective date of the Registration Statement that is incorporated by reference in the Registration Statement; any oral or written communication with potential investors undertaken in reliance on Rule 163B under the Act is hereinafter called a “Testing-the-Waters Communication”; and any Testing-the-Waters Communication that is a written communication within the

meaning of Rule 405 under the Act is hereinafter called a "Written Testing-the-Waters Communication"; and any "issuer free writing prospectus" as defined in Rule 433 under the Act relating to the Shares is hereinafter called an "Issuer Free Writing Prospectus");

(b) (A) No order preventing or suspending the use of any Preliminary Prospectus or any Issuer Free Writing Prospectus has been issued by the Commission, and (B) each Preliminary Prospectus, at the time of filing thereof, conformed in all material respects to the requirements of the Act and the rules and regulations of the Commission thereunder, and did not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; *provided, however*, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with the Underwriter Information (as defined in Section 9(b) of this Agreement);

(c) For the purposes of this Agreement, the "Applicable Time" is 6:15 p.m. (Eastern time) on the date of this Agreement. The Pricing Prospectus, as supplemented by the information listed on Schedule II(c) hereto, taken together (collectively, the "Pricing Disclosure Package"), as of the Applicable Time, did not, and as of each Time of Delivery (as defined in Section 4(a) of this Agreement) will not, include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; and each Issuer Free Writing Prospectus and each Written Testing-the-Waters Communication does not conflict with the information contained in the Registration Statement, the Pricing Prospectus or the Prospectus and each Issuer Free Writing Prospectus, each broadly available road show and each Written Testing-the-Waters Communication, as supplemented by and taken together with the Pricing Disclosure Package, as of the Applicable Time, did not, and as of each Time of Delivery will not, include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; *provided, however*, that this representation and warranty shall not apply to statements or omissions made in reliance upon and in conformity with the Underwriter Information;

(d) The documents incorporated by reference in the Pricing Prospectus and the Prospectus, when they became effective or were filed with the Commission, as the case may be, conformed in all material respects to the requirements of the Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder, and none of such documents contained an untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading; any further

documents so filed and incorporated by reference in the Pricing Prospectus and the Prospectus or any further amendment or supplement thereto, when such documents become effective or are filed with the Commission, as the case may be, will conform in all material respects to the requirements of the Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder and will not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading; *provided, however*, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with the Underwriter Information; and no such documents were filed by the Company with the Commission since the Commission's close of business on the business day immediately prior to the date of this Agreement and prior to the execution of this Agreement, except as set forth on Schedule II(b) hereto;

(e) The Registration Statement conforms, and the Prospectus and any further amendments or supplements to the Registration Statement and the Prospectus, on the date when such prospectus is filed, will conform, in all material respects to the requirements of the Act and the rules and regulations of the Commission thereunder and do not and will not, as of the applicable effective date as to each part of the Registration Statement, as of the applicable filing date as to the Prospectus and any amendment or supplement thereto, and as of each Time of Delivery, contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading; *provided, however*, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with the Underwriter Information;

(f) Neither the Company nor its subsidiary has, since the date of the latest audited financial statements included or incorporated by reference in the Pricing Prospectus and the Prospectus, (i) sustained any material loss or material interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree or (ii) entered into any transaction or agreement (whether or not in the ordinary course of business) that is material to the Company and its subsidiary taken as a whole or incurred any liability or obligation, direct or contingent, that is material to the Company and its subsidiary taken as a whole, in each case otherwise than as set forth or contemplated in the Pricing Prospectus and the Prospectus; and, since the respective dates as of which information is given in the Registration Statement and the Pricing Prospectus and the Prospectus, there has not been (x) any change in the capital stock (other than as a result of (i) the exercise, if any, of stock options or the award, if any, of stock options or restricted stock in the ordinary course of business pursuant to the Company's equity plans that are described in the Pricing Prospectus and the Prospectus or (ii) the issuance, if any, of stock upon conversion of Company securities as described in the Pricing

Prospectus and the Prospectus) or long-term debt of the Company or its subsidiary or (y) any Material Adverse Effect (as defined below); as used in this Agreement, "Material Adverse Effect" shall mean any material adverse change or effect, or any development involving a prospective material adverse change or effect, in or affecting (i) the business, properties, general affairs, management, financial position, prospects, stockholders' equity or results of operations of the Company and its subsidiary, taken as a whole, except as set forth or contemplated in the Pricing Prospectus, or (ii) the ability of the Company to perform its obligations under this Agreement, including the issuance and sale of the Shares, or to consummate the transactions contemplated in the Pricing Prospectus and the Prospectus;

(g) The Company and its subsidiary have good and marketable title in fee simple to all real property and good and marketable title to all personal property owned by them, in each case free and clear of all liens, encumbrances and defects except such as are described in the Pricing Prospectus and the Prospectus or such as do not materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company and its subsidiary; and any real property and buildings held under lease by the Company and its subsidiary are held by them under valid, subsisting and enforceable leases with such exceptions as are not material and do not materially interfere with the use made and proposed to be made of such property and buildings by the Company and its subsidiary;

(h) Each of the Company and its subsidiary has been (i) duly organized and is validly existing and in good standing under the laws of its jurisdiction of organization, with power and authority (corporate and other) to own its properties and conduct its business as described in the Pricing Prospectus and the Prospectus, and (ii) duly qualified as a foreign corporation for the transaction of business and is in good standing (where such concept exists) under the laws of each other jurisdiction in which it owns or leases properties or conducts any business so as to require such qualification, except, in the case of this clause (ii), where the failure to be so qualified or in good standing would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect, and each subsidiary of the Company has been listed in Exhibit 21.1 to the Annual Report on Form 10-K filed by the Company with the Commission on February 23, 2023;

(i) The Company has an authorized capitalization as set forth in the Pricing Prospectus and the Prospectus and all of the issued shares of capital stock of the Company have been duly and validly authorized and issued and are fully paid and non-assessable and conform to the description of the Stock contained in the Pricing Disclosure Package and Prospectus;

(j) The Shares to be issued and sold by the Company to the Underwriters hereunder have been duly and validly authorized and, when issued and delivered

against payment therefor as provided herein, will be duly and validly issued and fully paid and non-assessable and will conform to the description of the Stock contained in the Pricing Disclosure Package and the Prospectus; and the issuance of the Shares is not subject to any preemptive or similar rights, except as have been validly waived or complied with in connection with the offering of the Shares;

(k) The issue and sale of the Shares and the compliance by the Company with this Agreement and the consummation of the transactions contemplated in this Agreement and the Pricing Prospectus and the Prospectus will not conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, (A) any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or its subsidiary is a party or by which the Company or its subsidiary is bound or to which any of the property or assets of the Company or its subsidiary is subject, (B) the certificate of incorporation or by-laws (or other applicable organizational document) of the Company or its subsidiary, or (C) any statute or any judgment, order, rule or regulation of any court or governmental agency or body having jurisdiction over the Company or its subsidiary or any of their properties, except, in the case of clauses (A) and (C), for such violations that would not, individually or in the aggregate, reasonably be expected to result in a Material Adverse Effect; and no consent, approval, authorization, order, registration or qualification of or with any such court or governmental agency or body is required for the issue and sale of the Shares or the consummation by the Company of the transactions contemplated by this Agreement, except such as have been obtained under the Act, the approval for listing the Shares on The Nasdaq Global Exchange (the "Exchange") and such consents, approvals, authorizations, registrations or qualifications as may be required under state securities or Blue Sky laws in connection with the purchase and distribution of the Shares by the Underwriters;

(l) Neither the Company nor its subsidiary is (i) in violation of its certificate of incorporation or by-laws (or other applicable organizational document), (ii) in violation of any statute or any judgment, order, rule or regulation of any court or governmental agency or body having jurisdiction over the Company or its subsidiary or any of their properties, or (iii) in default in the performance or observance of any obligation, agreement, covenant or condition contained in any indenture, mortgage, deed of trust, loan agreement, lease or other agreement or instrument to which it is a party or by which it or any of its properties may be bound, except, in the case of the foregoing clauses (ii) and (iii), for such defaults as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect;

(m) The statements set forth in the Pricing Prospectus and Prospectus under the caption "Description of Capital Stock", insofar as they purport to constitute a summary of the terms of the Stock, are accurate, complete and fair in all material respects;

(n) Other than as set forth in the Pricing Prospectus and the Prospectus, there are no legal, governmental or regulatory investigations, actions, demands, claims, suits, arbitrations, inquiries or proceedings (“Actions”) pending to which the Company or its subsidiary or, to the Company’s knowledge, any officer or director of the Company or its subsidiary, is a party or of which any property of the Company or its subsidiary or, to the Company’s knowledge, any officer or director of the Company, is the subject which, if determined adversely to the Company or its subsidiary (or such officer or director), would, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect; and, to the Company’s knowledge, no such proceedings are threatened or contemplated by governmental authorities or others; and there are no current or pending Actions that are required under the Act to be described in the Registration Statement or the Pricing Prospectus that are not so described therein;

(o) 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 Pricing Prospectus and the Prospectus, will not be an “investment company”, as such term is defined in the Investment Company Act of 1940, as amended;

(p) (A) (i) At the time of filing the Registration Statement, (ii) at the time of the most recent amendment thereto for the purposes of complying with Section 10(a)(3) of the Act (whether such amendment was by post-effective amendment, incorporated report filed pursuant to Section 13 or 15(d) of the Exchange Act or form of prospectus), and (iii) at the time the Company or any person acting on its behalf (within the meaning, for this clause only, of Rule 163(c) under the Act) made any offer relating to the Shares in reliance on the exemption of Rule 163 under the Act, the Company was a “well-known seasoned issuer” as defined in Rule 405 under the Act; and (B) at the time of filing the Registration Statement and any post-effective amendment thereto, at the earliest time thereafter that the Company or any offering participant made a bona fide offer (within the meaning of Rule 164(h)(2) under the Act) of the Shares, and at the date hereof, the Company was not and is not an “ineligible issuer,” as defined under Rule 405 under the Act;

(q) There are (and prior to the Time of Delivery, will be) no debt securities or preferred stock issued or guaranteed by the Company that are rated by a “nationally recognized statistical rating organization”, as such term is defined in Section 3(a)(62) under the Exchange Act;

(r) KPMG LLP, who have certified certain financial statements of the Company and its subsidiary, are independent public accountants as required by the Act and the rules and regulations of the Commission thereunder;

(s) The Company maintains a system of internal control over financial reporting (as such term is defined in Rule 13a-15(f) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”)) that (i) complies with the

requirements of the Exchange Act, (ii) has been designed by the Company's principal executive officer and principal financial officer, or under their supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and (iii) is sufficient to provide reasonable assurance that (A) transactions are executed in accordance with management's general or specific authorization, (B) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain accountability for assets and (C) the interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement is accurate; the Company's internal control over financial reporting is effective and the Company is not aware of any material weaknesses in its internal control over financial reporting;

(t) Since the date of the latest audited financial statements included or incorporated by reference in the Pricing Prospectus and the Prospectus, there has been no change in the Company's internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting;

(u) The Company maintains disclosure controls and procedures (as such term is defined in Rule 13a-15(e) under the Exchange Act) that comply with the requirements of the Exchange Act; such disclosure controls and procedures have been designed to ensure that material information relating to the Company and its subsidiary is made known to the Company's principal executive officer and principal financial officer by others within those entities; such disclosure controls and procedures are effective; and the Company has carried out evaluations of the effectiveness of its disclosure controls and procedures as required by Rule 13a-15 of the Exchange Act through December 31, 2022;

(v) This Agreement has been duly authorized, executed and delivered by the Company;

(w) Neither the Company nor its subsidiary, nor, to the knowledge of the Company, any director, officer or employee of the Company or its subsidiary, nor, any agent, affiliate, representative or other person associated with or acting on behalf of the Company or its subsidiary (i) 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, entertainment, other expense 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; or (ii) has violated or is in violation of any provision of the Foreign Corrupt Practices Act of 1977, as amended, or the rules and regulations thereunder, the Bribery Act 2010 of the United Kingdom or any other applicable anti-corruption, anti-bribery or related law, statute or regulation (collectively, “Anti-Corruption Laws”); the Company and its subsidiary have conducted their businesses in compliance with Anti-Corruption Laws and have 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; neither the Company nor its subsidiary 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 Anti-Corruption Laws;

(x) The operations of the Company and its subsidiary are and have been conducted at all times in compliance with the requirements of applicable anti-money laundering laws, including, but not limited to, the Bank Secrecy Act of 1970, as amended by the USA PATRIOT ACT of 2001, and the rules and regulations promulgated thereunder, and the anti-money laundering laws of the various jurisdictions in which the Company and its subsidiary conduct business, the rules and regulations thereunder and any related or similar rules, regulation or guidelines issued, administered or enforced by any governmental agency (collectively, the “Money Laundering Laws”) and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or its subsidiary with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened;

(y) None of the Company, its subsidiary, any director, officer or employee of the Company or its subsidiary, nor, to the Company’s knowledge, any agent, affiliate, representative or other person associated with or acting on behalf of the Company or its subsidiary is an individual or entity (“**Person**”) that is, or is owned or controlled by one or more Persons that are (i) currently the subject or the target of any sanctions administered or enforced by the U.S. Government, including, without limitation, the Office of Foreign Assets Control of the U.S. Department of the Treasury (“**OFAC**”), or the U.S. Department of State and including, without limitation, the designation as a “specially designated national” or “blocked person,” the European Union, His Majesty’s Treasury, the United Nations Security Council, or other relevant sanctions authority (collectively, “**Sanctions**”), (ii) located, organized, or resident in a country or territory that is the subject or target of comprehensive Sanctions (currently, Cuba, Iran, North Korea, Syria, and the Crimea, so-called Donetsk People’s Republic, and so-called Luhansk People’s Republic regions of Ukraine) (each a “**Sanctioned Jurisdiction**”), and the Company will not directly or indirectly use the proceeds of the offering of the Shares hereunder, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other Person or entity (i) to fund or facilitate any

activities or business of or with any Person in any Sanctioned Jurisdiction or with any Person, that, at the time of such funding, is the subject or the target of Sanctions or (ii) in any other manner that will result in a violation by any Person (including any Person participating in the transaction, whether as underwriter, advisor, investor or otherwise) of Sanctions; neither the Company nor its subsidiary is engaged in, or has, at any time in the past five years, engaged in, any dealings or transactions with or involving any Person that was or is, as applicable, at the time of such dealing or transaction, the subject or target of Sanctions or with any Sanctioned Jurisdiction; the Company and its subsidiary have instituted, and maintain, policies and procedures designed to promote and achieve continued compliance with Sanctions;

(z) The financial statements included in the Registration Statement, the Pricing Prospectus and the Prospectus, together with the related schedules and notes, present fairly in all material respects the financial position of the Company and its subsidiary at the dates indicated and the statement of operations, stockholders' equity and cash flows of the Company and its subsidiary for the periods specified; said financial statements have been prepared in conformity with U.S. generally accepted accounting principles ("GAAP") applied on a consistent basis throughout the periods involved. The supporting schedules, if any, present fairly in all material respects in accordance with GAAP the information required to be stated therein. The selected financial data and the summary financial information included in the Registration Statement, the Pricing Prospectus and the Prospectus present fairly in all material respects the information shown therein and have been compiled on a basis consistent with that of the audited financial statements included therein. Except as included therein, no historical or pro forma financial statements or supporting schedules are required to be included in the Registration Statement, the Pricing Prospectus or the Prospectus under the Act or the rules and regulations promulgated thereunder;

(aa) There are no persons with registration rights or other similar rights to have any securities registered pursuant to the Registration Statement or otherwise registered by the Company under the Act except as have been validly waived or complied with in connection with the offering of the Shares;

(bb) No labor disturbance by or dispute with current or former employees or officers of the Company or its subsidiary exists or, to the Company's knowledge, is contemplated or threatened, and the Company is not aware of any existing or imminent labor disturbance by, or dispute with, the employees of any of the Company's or its subsidiary's principal suppliers, manufacturers or contractors. Neither the Company nor its subsidiary is a party to any collective bargaining agreement;

(cc) Each of the Company and its subsidiary has insurance covering its respective properties, operations, personnel and businesses, including business interruption insurance, which insurance is in amounts and insures against such losses and risks as are reasonable and is ordinary and customary for comparable companies in the same or similar businesses; and each of the Company and its subsidiary has not (i) received notice from any insurer or agent of such insurer that capital improvements or other expenditures are required or necessary to be made in order to continue such insurance or (ii) 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 at reasonable cost from similar insurers as may be necessary to continue its business;

(dd) The Company's board of directors meets the independence requirements of, and has established an audit committee, a compensation committee and a nominating and corporate governance committee, in each case, that meets the independence requirements of, the rules and regulations of the Commission and Nasdaq, including the phase in periods provided by the rules and regulations of the Commission and Nasdaq;

(ee) The Company and its subsidiary and their respective directors, officers and employees, and to the Company's knowledge, their respective agents, affiliates and representatives, are, and at all times have been, in material compliance with all Health Care Laws (defined herein), including, but not limited to, the rules and regulations of the Food and Drug Administration ("FDA"), the U.S. Department of Health and Human Services Office of Inspector General, the Centers for Medicare & Medicaid Services, and has not engaged in any activities which are, as applicable, cause for false claims liability, civil penalties, or mandatory or permissive exclusion from Medicare, Medicaid, or any other local, state or federal healthcare program. For purposes of this Agreement, "Health Care Laws" shall mean the federal Anti-kickback Statute (42 U.S.C. § 1320a-7b(b)), the Physician Payments Sunshine Act (42 U.S.C. § 1320a-7h), the civil False Claims Act (31 U.S.C. §§ 3729 et seq.), the criminal False Claims Act (42 U.S.C. § 1320a-7b(a)), all criminal laws relating to health care fraud and abuse, including but not limited to 18 U.S.C. Sections 286 and 287, and the health care fraud criminal provisions under the Health Insurance Portability and Accountability Act of 1996 (42 U.S.C. §§ 1320d et seq.) ("HIPAA"), the exclusion laws (42 U.S.C. § 1320a-7), the civil monetary penalties law (42 U.S.C. § 1320a-7a), HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act (42 U.S.C. §§ 17921 et seq.), the Federal Food, Drug, and Cosmetic Act (21 U.S.C. §§ 301 et seq.), Medicare statute (Title XVIII of the Social Security Act), Medicaid statute (Title XIX of the Social Security Act), Medicaid Drug Rebate Program (42 U.S.C. § 1396r-8), Medicare average sales price reporting (42 U.S.C. § 1395w-3a), the Public Health Service Act (42 U.S.C. § 256b), the VA Federal Supply Schedule (38 U.S.C § 8126) or the rules and regulations of any other federal, state or local governmental or

regulatory body or authority. Neither the Company nor its subsidiary is a party to or has any ongoing reporting obligations pursuant to any corporate integrity agreement, deferred prosecution agreement, monitoring agreement, consent decree, settlement order, plan of correction or similar agreement imposed by any governmental authority. Neither the Company nor its subsidiary has received any notification, correspondence or any other written or oral communication, including, without limitation, any FDA Form 483, notice of adverse finding, warning letter, untitled letter or other correspondence or notice from the FDA or any similar regulatory authority, or any notification of any pending or threatened claim, suit, proceeding, hearing, enforcement, investigation, arbitration or other action, from any governmental authority of non-compliance by, or liability of, the Company or its subsidiary under any Health Care Laws;

(ff) Each of the Company and its subsidiary possesses, and is in compliance with the terms of, all applications, certificates, approvals, clearances, registrations, exemptions, franchises, licenses, permits, consents and other authorizations necessary to conduct its business, as currently conducted (collectively, "Licenses"), issued by the appropriate Governmental Authorities, including, without limitation, all Licenses required by the FDA, or any component thereof, the National Institutes of Health ("NIH") and/or by any other U.S., state, local or foreign government or drug regulatory agency (collectively, the "Regulatory Agencies"), other than for such instances of non-compliance which would not reasonably be expected to result in a Material Adverse Effect. All Licenses are in full force and effect and, to the Company's knowledge, the Company and its subsidiary are not in violation of any term or conditions of any License. The Company and its subsidiary have fulfilled and performed all of their respective obligations with respect to the Licenses and, to the Company's knowledge, no event has occurred which allows, or after notice or lapse of time would allow, revocation or termination thereof or results in any other impairment of the rights of the holder of any License. Neither the Company nor its subsidiary has received any written notice of proceedings relating to the revocation or modification of any Licenses and no Regulatory Agency has taken any action to limit, suspend or revoke any License possessed by the Company or its subsidiary;

(gg) The pre-clinical studies and clinical trials that are described in the Registration Statement, the Pricing Prospectus and the Prospectus were and, if still pending, are being, conducted in all material respects in accordance with the protocols submitted to FDA or any foreign governmental body exercising comparable authority, procedures and controls pursuant to, where applicable, accepted professional and scientific standards, and all applicable laws and regulations; the descriptions of the pre-clinical studies and clinical trials conducted by or, to the Company's knowledge, on behalf of the Company, and the results thereof, contained in the Registration Statement, the Pricing Prospectus and the Prospectus are accurate and complete in all material respects; the Company is not

aware of any other pre-clinical studies or clinical trials, the results of which reasonably call into question the results described in the Registration Statement, the Pricing Prospectus and the Prospectus; and the Company has not received any notices or correspondence from the FDA, any foreign, state or local governmental body exercising comparable authority or any Institutional Review Board requiring the termination, suspension, material modification or clinical hold of any pre-clinical studies or clinical trials conducted by or on behalf of the Company;

(hh) Neither the Company nor its subsidiary nor their respective officers, employees or directors, nor, to the Company's knowledge, any of its or their respective agents or clinical investigators, has been excluded, suspended or debarred from participation in any U.S. federal health care program or human clinical research or, to the Company's knowledge, is subject to a governmental inquiry, investigation, proceeding, or other similar action that could reasonably be expected to result in debarment, suspension, or exclusion, or convicted of any crime or engaged in any conduct that could reasonably be expected to result in debarment under 21 U.S.C. § 335a;

(ii) The Company and its subsidiary own or have valid, binding and enforceable licenses or other rights to practice and use all patents and patent applications, copyrights, trademarks, trademark registrations, service marks, service mark registrations, trade names, service names and know-how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures) and all other technology and intellectual property rights necessary for, or used in the conduct, or the proposed conduct, of the business of the Company and its subsidiary in the manner described in the Pricing Prospectus and the Prospectus (collectively, the "Company Intellectual Property"), and, to the Company's knowledge, the conduct of its and its subsidiary's businesses (including the development and commercialization of the product candidates described in the Pricing Prospectus and the Prospectus) have not and will not infringe or misappropriate any intellectual property rights of others; there are no rights of third parties to any of the intellectual property owned by the Company or its subsidiary, and such intellectual property is owned by the Company and its subsidiary free and clear of all material liens, security interests, or encumbrances; to the knowledge of the Company, the patents, trademarks and copyrights held or licensed by the Company and its subsidiary included within the Company Intellectual Property are valid, enforceable and subsisting; to the Company's knowledge, there is no infringement by third parties of any of the Company Intellectual Property; other than as disclosed in the Pricing Prospectus and the Prospectus, (i) the Company and its subsidiary are not obligated to pay a material royalty, grant a license, or provide other material consideration to any third party in connection with the Company Intellectual Property, (ii) no action, suit, claim or other proceeding is pending or, to the knowledge of the Company, is threatened, alleging that the Company or its subsidiary is infringing, misappropriating, diluting or

otherwise violating any rights of others with respect to any of the Company's or its subsidiary's product candidates, processes or intellectual property, and the Company is unaware of any facts which could form a reasonable basis for any such action, suit, proceeding or claim, (iii) no action, suit, claim or other proceeding is pending or, to the knowledge of the Company, is threatened, challenging the validity, enforceability, scope, registration, ownership or use of any of the Company's Intellectual Property, and the Company is unaware of any facts which could form a reasonable basis for any such action, suit, proceeding or claim, (iv) no action, suit, claim or other proceeding is pending or, to the knowledge of the Company, is threatened, challenging the Company's or its subsidiary's rights in or to any Company Intellectual Property, and the Company is unaware of any facts which could form a reasonable basis for any such action, suit, proceeding or claim, (v) neither the Company nor its subsidiary has received written notice of any claim of infringement, misappropriation or conflict with any asserted rights of others with respect to any of the Company's or its subsidiary's products, proposed products, processes or Company Intellectual Property, (vi) to the knowledge of the Company, the development, manufacture, sale, and any currently proposed use of any of the products, proposed products or processes of the Company and its subsidiary referred to in the Pricing Prospectus and the Prospectus, in the current or proposed conduct of the business of the Company and its subsidiary, do not currently, and will not upon commercialization, to the knowledge of the Company, infringe any right or valid patent claim of any third party, (vii) to the knowledge of the Company, no third party has any ownership right in or to any Company Intellectual Property in any field of use that is exclusively licensed to the Company or its subsidiary, other than any licensor to the Company or its subsidiary of such Company Intellectual Property, (viii) to the knowledge of the Company, no employee, consultant or independent contractor of the Company or its subsidiary is in or has ever been in violation in any material respect of any term of any employment contract, patent disclosure agreement, invention assignment agreement, non-competition agreement, non-solicitation agreement nondisclosure agreement or any restrictive covenant to or with a former employer or independent contractor where the basis of such violation relates to such employee's employment or independent contractor's engagement with the Company or its subsidiary or actions undertaken while employed or engaged with the Company or its subsidiary, (ix) each of the Company and its subsidiary has taken reasonable measures to protect its confidential information and trade secrets and to maintain and safeguard the Company's Intellectual Property, including the execution of appropriate nondisclosure and confidentiality agreements, and to the Company's knowledge, no employee of the Company or its subsidiary is in or has been in violation of any term of any employment contract, patent disclosure agreement, invention assignment agreement, non-competition agreement, non-solicitation agreement, nondisclosure agreement, or any restrictive covenant to or with a former employer where the basis of such violation relates to such employee's employment with the Company or its subsidiary, and (x) each of the Company and its subsidiary has

complied with the terms of each agreement pursuant to which the Company's Intellectual Property has been licensed to the Company or its subsidiary, and all such agreements are in full force and effect;

(jj) All patents and patent applications owned by or licensed to the Company or its subsidiary or under which the Company or its subsidiary has rights have, to the knowledge of the Company, been duly and properly filed and maintained; to the knowledge of the Company, there are no material defects in any of the patents or patent applications disclosed in the Registration Statement and the Prospectus as being owned by the Company or its subsidiary; to the knowledge of the Company, the parties prosecuting such applications have complied with their duty of candor and disclosure to the United States Patent and Trademark Office (the "USPTO") in connection with such applications; and the Company is not aware of any facts required to be disclosed to the USPTO that were not disclosed to the USPTO and which would preclude the grant of a patent in connection with any such application or could form the basis of a finding of invalidity with respect to any patents that have issued with respect to such applications;

(kk) Any statistical, industry-related and market-related data included in the Pricing Prospectus and the Prospectus are based on or derived from sources that the Company believes, after reasonable inquiry, to be reliable and accurate and, to the extent required, the Company has obtained, the written consent to the use of such data from such sources;

(ll) The Company and its subsidiary possess all licenses, certificates, permits and other authorizations issued by, and have made all declarations and filings with, the appropriate federal, state, local or foreign governmental or regulatory authorities having jurisdiction over each of the Company and its subsidiary that are necessary for the ownership or lease of its properties or the conduct of its business as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, except where the failure to possess or make the same would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect; and except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company and its subsidiary have not received written notice of any revocation or modification of any such license, certificate, permit or authorization, except where such revocation or modification would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect;

(mm) All United States federal income tax returns of the Company and its subsidiary required by law to be filed have been filed and all taxes shown as due on such returns or that otherwise have been assessed, which are due and payable, have been paid, except assessments against which appeals have been or will be promptly taken and as to which adequate reserves have been provided. The

Company and its subsidiary have filed all other tax returns that are required to have been filed by them pursuant to applicable foreign, state, local or other law except insofar as the failure to file such returns would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect, and has paid all taxes due pursuant to such returns or pursuant to any assessment received by the Company or its subsidiary, except for such taxes, if any, as are being contested in good faith and as to which adequate reserves have been provided. No tax deficiency has been determined adversely to the Company or its subsidiary which has (nor does the Company or its subsidiary have any written notice or knowledge of any tax deficiency which could reasonably be expected to be determined adversely to the Company or its subsidiary and which would, individually or in the aggregate, reasonably be expected to have) a Material Adverse Effect;

(nn) The Company has not taken and will not take, directly or indirectly, any action that is designed to or that has constituted or might reasonably be expected to cause or result in stabilization or manipulation of the price of the Shares;

(oo) The Company is not a party to any contract, agreement or understanding with any person (other than this Agreement) that would give rise to a valid claim against the Company or any Underwriter for a brokerage commission, finder's fee or like payment in connection with the offering and sale of the Shares;

(pp) No relationship, direct or indirect, exists between or among the Company, on the one hand, and the directors, officers, stockholders, customers or suppliers of the Company, on the other, that is required by the Act to be described in the Registration Statement and the Prospectus and that is not so described in such documents and in the Registration Statement, the Pricing Disclosure Package and the Prospectus;

(qq) There are no contracts, arrangements or documents which are required to be described in the Registration Statement or to be filed as exhibits thereto which have not been so described and filed as required;

(rr) Except as would not reasonably be expected to result in a Material Adverse Effect, (a) there has been no security breach or other material compromise of any of the Company's or its subsidiary's information technology and computer systems, networks, hardware, software, sensitive data (including the sensitive, personal, or proprietary data of its customers, employees, suppliers, and vendors maintained by or on behalf of the Company or its subsidiary), equipment or technology (collectively, "IT Systems and Data"), (b) neither the Company nor its subsidiary has been notified of, and has no knowledge of any event or condition that would reasonably be expected to result in, any security breach or other material compromise to its IT Systems and Data; and (c) there has been no security breach

or other material compromise of any of the Company's or its subsidiary's IT Systems and Data being operated or provided by any third party service providers;

(ss) Neither the Company nor its subsidiary, nor to the Company's knowledge, any of their respective officers, directors and employees, nor any of their respective agents, contractors or licensees (if any), nor any of their respective business operations, is in violation of any applicable privacy or cybersecurity laws, including the European Union General Data Protection Regulation ("EU GDPR") (EU 2016/679) or the United Kingdom GDPR ("UK GDPR" and, collectively with the EU GDPR, "GDPR"), and the Company and its subsidiary and, to the Company's knowledge, their respective officers, directors and employees, and all of their respective agents, contractors or licensees (if any), comply with the California Consumer Privacy Act of 2018 ("CCPA") and are currently, or have taken commercially reasonable actions to be, in compliance with similar privacy laws in Virginia, Colorado, Utah, and Connecticut and the California Privacy Rights Act ("CPRA"), and all other applicable laws and regulations with respect to Personal Data (collectively, the "Privacy Laws"). "Personal Data" means (i) a natural person's name, street address, telephone number, e-mail address, photograph, social security number or tax identification number, driver's license number, passport number, credit card number, bank information, or customer or account number; (ii) any information which would qualify as "personally identifying information" under the Federal Trade Commission Act, as amended; (iii) "personal data" as defined by GDPR; (iv) any information which would qualify as "protected health information" defined under HIPAA, and (v) any other piece of information that allows the identification of such natural person, or his or her family, or permits the collection or analysis of any data related to an identified person's health or sexual orientation;

(tt) The Company and its subsidiary have complied and are presently in compliance with all internal policies and contractual obligations relating to (a) the privacy and security of IT Systems and Data and (b) the implementation of commercially reasonable measures to protect such IT Systems and Data from unauthorized use, access, misappropriation or modification, except as would not, in the case of this clause, individually or in the aggregate, reasonably be expected to result in a Material Adverse Effect. The Company and its subsidiary have implemented backup and disaster recovery technology consistent with industry standards and practices. The Company and its subsidiary and, to the Company's knowledge, their respective officers, directors and employees, and their respective agents, contractors or licensees (if any), have also operated their business in a manner compliant with all Privacy Laws and other material privacy, data security and data protection laws, regulations, and industry standards applicable to the Company's and its subsidiary's collection, use, transfer, protection, disposal, disclosure, handling, storage and analysis of its personal data; and the Company and its subsidiary and, to the Company's knowledge, their respective officers, directors and employees, and their respective agents, contractors or licensees (if

any), have been and are presently in material compliance with all applicable laws or statutes and all judgments, orders, rules and regulations of any court or arbitrator or governmental or regulatory authority relating to the privacy and security of IT Systems and Data and to the protection of such IT Systems and Data from unauthorized use, access, misappropriation or modification;

(uu) The Company and each director and officer of the Company, in their capacities as such, are in compliance, to the extent required, with all provisions of the Sarbanes-Oxley Act of 2002, as amended (the "Sarbanes-Oxley Act"), and all rules and regulations promulgated thereunder applicable to, and the Company at such time, and is taking steps designed to ensure that it will be in compliance, at all times, with the other provisions of the Sarbanes-Oxley Act when they become applicable to the Company;

(vv) 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; and

(ww) Since inception, Karuna Securities Corporation, a subsidiary of the Company, has not conducted, and does not currently conduct, any operations, has not had and does not have any employees and has been and is engaged exclusively in buying, selling, dealing in and holding publicly-traded securities on its own behalf and not as a broker.

2. Subject to the terms and conditions herein set forth, (a) the Company agrees to issue and sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at a purchase price per share of \$153.2635, the number of Firm Shares set forth opposite the name of such Underwriter in Schedule I hereto and (b) in the event and to the extent that the Underwriters shall exercise the election to purchase Optional Shares as provided below, the Company agrees to issue and sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at the purchase price per share set forth in clause (a) of this Section 2 (provided that the purchase price per Optional Share shall be reduced by an amount per share equal to any dividends or distributions declared by the Company and payable on the Firm Shares but not payable on the Optional Shares), that portion of the number of Optional Shares as to which such election shall have been exercised (to be adjusted by you so as to eliminate fractional shares) determined by multiplying such number of Optional Shares by a fraction, the numerator of which is the maximum number of Optional Shares which such Underwriter is entitled to purchase as set forth opposite the name of such Underwriter in Schedule I hereto and the denominator of which is the maximum number of Optional Shares that all of the Underwriters are entitled to purchase hereunder.

(i) The Company hereby grants to the Underwriters the right to purchase at their election up to 371,908 Optional Shares, at the purchase price per share set forth in the paragraph above, provided that the purchase price per Optional Share shall be reduced by an amount per share equal to any dividends or distributions declared by the Company and payable on the Firm Shares but not payable on the Optional Shares. Any such election to purchase Optional Shares may be exercised only by written notice from the Representatives to the Company, given within a period of 30 calendar days after the date of this Agreement, setting forth the aggregate number of Optional Shares to be purchased and the date on which such Optional Shares are to be delivered, as determined by the Representatives but in no event earlier than the First Time of Delivery (as defined in Section 4 hereof) or, unless the Representatives and the Company otherwise agree in writing, earlier than two or later than ten business days after the date of such notice.

3. Upon the authorization by you of the release of the Firm Shares, the several Underwriters propose to offer the Firm Shares for sale upon the terms and conditions set forth in the Pricing Disclosure Package and the Prospectus.

4.(a) The Shares to be purchased by each Underwriter hereunder, in definitive or book-entry form, and in such authorized denominations and registered in such names as the Representatives may request upon at least forty-eight hours' prior notice to the Company shall be delivered by or on behalf of the Company to the Representatives, through the facilities of the Depository Trust Company ("DTC"), for the account of such Underwriter, against payment by or on behalf of such Underwriter of the purchase price therefor by wire transfer of Federal (same-day) funds to the account specified by the Company to the Representatives at least forty-eight hours in advance. The Company will cause the certificates, if any, representing the Shares to be made available for checking and packaging at least twenty-four hours prior to the Time of Delivery (as defined below) with respect thereto at the office of DTC or its designated custodian (the "Designated Office"). The time and date of such delivery and payment shall be, with respect to the Firm Shares, 9:30 a.m., New York City time, on March 24, 2023 or such other time and date as the Representatives and the Company may agree upon in writing, and, with respect to the Optional Shares, 9:30 a.m., New York time, on the date specified by the Representatives in the written notice given by the Representatives of the Underwriters' election to purchase such Optional Shares, or such other time and date as the Representatives and the Company may agree upon in writing. Such time and date for delivery of the Firm Shares is herein called the "First Time of Delivery", such time and date for delivery of the Optional Shares, if not the First Time of Delivery, is herein called the "Second Time of Delivery", and each such time and date for delivery is herein called a "Time of Delivery".

(b) The documents to be delivered at each Time of Delivery by or on behalf of the parties hereto pursuant to Section 8 hereof, including the cross receipt

for the Shares and any additional documents requested by the Underwriters pursuant to Section 8(k) hereof, will be delivered at the offices of Cooley LLP, 55 Hudson Yards, New York, New York 10001-2157 (the "Closing Location"), and the Shares will be delivered at the Designated Office, all at such Time of Delivery. A meeting will be held at the Closing Location at 5:00 p.m., New York City time, on the New York Business Day next preceding such Time of Delivery, at which meeting the final drafts of the documents to be delivered pursuant to the preceding sentence will be available for review by the parties hereto. For the purposes of this Section 4, "New York Business Day" shall mean each Monday, Tuesday, Wednesday, Thursday and Friday which is not a day on which banking institutions in New York City are generally authorized or obligated by law or executive order to close.

5. The Company agrees with each of the Underwriters:

(a) To prepare the Prospectus in a form approved by you and to file such Prospectus pursuant to Rule 424(b) under the Act not later than the Commission's close of business on the second business day following the execution and delivery of this Agreement; to make no further amendment or any supplement to the Registration Statement, the Basic Prospectus or the Prospectus prior to the last Time of Delivery which shall be disapproved by you promptly after reasonable notice thereof; to advise you, promptly after it receives notice thereof, of the time when any amendment to the Registration Statement has been filed or becomes effective or any amendment or supplement to the Prospectus has been filed and to furnish you with copies thereof; to file promptly all other material required to be filed by the Company with the Commission pursuant to Rule 433(d) under the Act; to file promptly all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act subsequent to the date of the Prospectus and for so long as the delivery of a prospectus (or in lieu thereof, the notice referred to in Rule 173(a) under the Act) is required in connection with the offering or sale of the Shares; to advise you, promptly after it receives notice thereof, of the issuance by the Commission of any stop order or of any order preventing or suspending the use of any Preliminary Prospectus or other prospectus in respect of the Shares, of any notice of objection of the Commission to the use of the Registration Statement or any post-effective amendment thereto pursuant to Rule 401(g)(2) under the Act, of the suspension of the qualification of the Shares for offering or sale in any jurisdiction, of the initiation or threatening of any proceeding for any such purpose, or of any request by the Commission for the amending or supplementing of the Registration Statement or the Prospectus or for additional information; and, in the event of the issuance of any stop order or of any order preventing or suspending the use of any Preliminary Prospectus or other prospectus relating to the Shares or suspending any such qualification, to promptly use its best efforts to obtain the withdrawal of such order; and in the event of any such issuance of a notice of objection, promptly to take such reasonable steps including, without limitation,

amending the Registration Statement or filing a new registration statement, at its own expense, as may be necessary to permit offers and sales of the Shares by the Underwriters (references herein to the Registration Statement shall include any such amendment or new registration statement);

(b) If required by Rule 430B(h) under the Act, to prepare a form of prospectus in a form approved by you and to file such form of prospectus pursuant to Rule 424(b) under the Act not later than may be required by Rule 424(b) under the Act; and to make no further amendment or supplement to such form of prospectus which shall be disapproved by you promptly after reasonable notice thereof;

(c) Promptly from time to time to take such action as you may reasonably request to qualify the Shares for offering and sale under the securities laws of such jurisdictions as you may request and to use reasonable commercial efforts to comply with such laws so as to permit the continuance of sales and dealings therein in such jurisdictions for as long as may be necessary to complete the distribution of the Shares, provided that in connection therewith the Company shall not be required to qualify as a foreign corporation (where not otherwise required) or to file a general consent to service of process in any jurisdiction or subject itself to taxation in any jurisdiction in which it is not otherwise subject to taxation as of the date hereof;

(d) Prior to 10:00 a.m., New York City time, on the New York Business Day next succeeding the date of this Agreement and from time to time, to furnish the Underwriters with written and electronic copies of the Prospectus in New York City in such quantities as you may reasonably request, and, if the delivery of a prospectus (or in lieu thereof, the notice referred to in Rule 173(a) under the Act) is required at any time prior to the expiration of nine months after the time of issue of the Prospectus in connection with the offering or sale of the Shares and if at such time any event shall have occurred as a result of which the Prospectus as then amended or supplemented would include an untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made when such Prospectus (or in lieu thereof, the notice referred to in Rule 173(a) under the Act) is delivered, not misleading, or, if for any other reason it shall be necessary during such same period to amend or supplement the Prospectus or to file under the Exchange Act any document incorporated by reference in the Prospectus in order to comply with the Act or the Exchange Act, to notify you and upon your request to file such document and to prepare and furnish without charge to each Underwriter and to any dealer in securities as many written and electronic copies as you may from time to time reasonably request of an amended Prospectus or a supplement to the Prospectus which will correct such statement or omission or effect such compliance; and in case any Underwriter is required to deliver a prospectus (or in

lieu thereof, the notice referred to in Rule 173(a) under the Act) in connection with sales of any of the Shares at any time nine months or more after the time of issue of the Prospectus, upon your request but at the expense of such Underwriter, to prepare and deliver to such Underwriter as many written and electronic copies as you may request of an amended or supplemented Prospectus complying with Section 10(a)(3) of the Act;

(e) To make generally available to its securityholders as soon as practicable (which may be satisfied by filing with the Commission's Electronic Data Gathering, Analysis and Retrieval System ("EDGAR")), but in any event not later than sixteen months after the effective date of the Registration Statement (as defined in Rule 158(c) under the Act), an earnings statement of the Company and its subsidiary (which need not be audited) complying with Section 11(a) of the Act and the rules and regulations of the Commission thereunder (including, at the option of the Company, Rule 158);

(f) (i) During the period beginning from the date hereof and continuing to and including the date 60 days after the date of the Prospectus (the "Lock-Up Period"), not to (i) offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale or otherwise transfer or dispose of, directly or indirectly, or file with or confidentially submit to the Commission a registration statement under the Act relating to, any securities of the Company that are substantially similar to the Shares, including but not limited to any options or warrants to purchase shares of Stock or any securities that are convertible into or exchangeable for, or that represent the right to receive, Stock or any such substantially similar securities, or publicly disclose the intention to make any offer, sale, pledge, disposition or filing, (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Stock or any such other securities, whether any such transaction described in clauses (i) or (ii) above is to be settled by delivery of Stock or such other securities, in cash or otherwise (other than the Shares to be sold hereunder or pursuant to employee stock option plans existing on, or upon the conversion or exchange of convertible or exchangeable securities outstanding as of, the date of this Agreement) or (iii) publicly disclose the intention to do any of the foregoing, in each case, without the prior written consent of the Representatives; provided, however, that the restrictions in the foregoing sentence shall not apply to (a) the Shares to be sold hereunder; (b) Shares or any securities (including without limitation options, restricted stock or restricted stock units) convertible into, or exercisable for, shares of Stock pursuant to any employee stock option plan, incentive plan, stock plan, dividend reinvestment plan or otherwise in equity compensation arrangements in place as of the Applicable Time and as described in the Pricing Disclosure Package; (c) the grant of awards pursuant to employee equity-based compensation plans, incentive plans, stock plans, or other arrangements in place as of the Applicable Time and as described in the Pricing Disclosure Package; (d) the filing of a registration statement on Form S-8 in

connection with the registration of Shares issuable under any employee equity-based compensation plan, incentive plan, stock plan, dividend reinvestment plan adopted and approved by the Company's board of directors prior to the Applicable Time and as described in the Pricing Disclosure Package; and (e) the issuance of up to 5% of the outstanding shares of Stock immediately after the closing of the Shares as contemplated hereunder in connection with the bona fide acquisition, strategic investment, licensing, commercialization, joint venture, technology transfer or development collaboration agreement with an unaffiliated third party; provided that each recipient of any Shares issued or sold pursuant to clause (b), (c) or (e) above executes and delivers to the Representatives prior to such issuance or sale (as the case may be) an agreement having substantially the same terms as the lock-up letters described in Section 8(i) of this Agreement;

(g) To use the net proceeds received by it from the sale of the Shares pursuant to this Agreement in the manner specified in the Pricing Prospectus and the Prospectus under the caption "Use of Proceeds";

(h) To use its best efforts to list, subject to notice of issuance, the Shares on the Nasdaq Global Market (the "Nasdaq");

(i) Upon reasonable request of any Underwriter, to furnish, or cause to be furnished, to such Underwriter an electronic version of the Company's trademarks, servicemarks and corporate logo for use on the website, if any, operated by such Underwriter for the purpose of facilitating the on-line offering of the Shares (the "License"); provided, however, that the License shall be used solely for the purpose described above, is granted without any fee and may not be assigned or transferred; and

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

6.(a) The Company represents and agrees that, without the prior consent of the Representatives, it has not made and will not make any offer relating to the Shares that would constitute a "free writing prospectus" as defined in Rule 405 under the Act; each Underwriter represents and agrees that, without the prior consent of the Company and the Representatives, it has not made and will not make any offer relating to the Shares that would constitute a free writing prospectus required to be filed with the Commission; any such free writing prospectus the use of which has been consented to by the Company and the Representatives is listed on Schedule II(a) or Schedule II(c) hereto;

(b) The Company has complied and will comply with the requirements of Rule 433 under the Act applicable to any Issuer Free Writing Prospectus, including timely filing with the Commission or retention where required and legending;

(c) The Company agrees that if at any time following issuance of an Issuer Free Writing Prospectus or Written Testing-the-Waters Communication any event occurred or occurs as a result of which such Issuer Free Writing Prospectus or Written Testing-the-Waters Communication would conflict with the information in the Registration Statement, the Pricing Prospectus or the Prospectus or would include an untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances then prevailing, not misleading, the Company will give prompt notice thereof to the Representatives and, if requested by the Representatives, will prepare and furnish without charge to each Underwriter an Issuer Free Writing Prospectus, Written Testing-the-Waters Communication or other document which will correct such conflict, statement or omission; provided, however, that this representation and warranty shall not apply to any statements or omissions in an Issuer Free Writing Prospectus made in reliance upon and in conformity with the Underwriter Information;

(d) The Company represents and agrees that (i) it has not engaged in, or authorized any other person to engage in, any Testing-the-Waters Communications other than Testing-the-Waters Communications, if any, with the prior consent of the Representatives with entities that are qualified institutional buyers as defined in Rule 144A under the Act or institutions that are accredited investors as defined in Rule 501(a) under the Act; and (ii) it has not distributed, or authorized any other person to distribute, any Written Testing-the-Waters Communication, other than those distributed with the prior consent of the Representatives that are listed on Schedule II(d) hereto and the Company reconfirms that the Underwriters will have been authorized to act on its behalf in engaging in Testing-the-Waters Communications if such communications are to take place;

(e) Each Underwriter represents and agrees that any Testing-the-Waters Communications undertaken by it were with entities that are qualified institutional buyers as defined in Rule 144A under the Act or institutions that are accredited investors as defined in Rule 501(a) under the Act;

7. The Company covenants and agrees with the several Underwriters that the Company will pay or cause to be paid the following: (i) the fees, disbursements and expenses of the Company's counsel and accountants in connection with the registration of the Shares under the Act and all other expenses in connection with the preparation, printing, reproduction and filing of the Registration Statement, the Basic Prospectus, any Preliminary Prospectus, any Written Testing-the-Waters Communication, any Issuer Free Writing Prospectus and the Prospectus and amendments and supplements thereto and the mailing and delivering of copies thereof to the Underwriters and dealers; (ii) the cost of printing or producing any Agreement among Underwriters, this Agreement, the Blue Sky Memorandum,

closing documents (including any compilations thereof) and any other documents in connection with the offering, purchase, sale and delivery of the Shares; (iii) all expenses in connection with the qualification of the Shares for offering and sale under state securities laws as provided in Section 5(d) hereof, including the fees and disbursements of counsel for the Underwriters in connection with such qualification and in connection with the Blue Sky survey; (iv) all fees and expenses in connection with listing the Shares on Nasdaq; (v) the filing fees incident to, and the fees and disbursements of counsel for the Underwriters in connection with, any required review by the Financial Industry Regulatory Authority of the terms of the sale of the Shares, in an amount not to exceed \$20,000; (vi) the cost of preparing stock certificates; (vii) the cost and charges of any transfer agent or registrar; (viii) any transfer, documentary, stamp or similar issue tax, including any interest and penalties, resulting from the creation, issue, sale, or resale of any of the Shares pursuant to this Agreement or the execution and delivery of this Agreement; and (ix) all other costs and expenses incident to the performance of its obligations hereunder which are not otherwise specifically provided for in this Section. It is understood, however, that, except as provided in this Section, and Sections 9 and 12 hereof, the Underwriters will pay all of their own costs and expenses, including the fees of their counsel and any advertising expenses connected with any offers they may make; provided, however, that the Underwriters and the Company shall each pay 50% of the cost of chartering any aircraft to be used by both the Company and the Underwriters in connection with the road show.

8. The obligations of the Underwriters hereunder, as to the Shares to be delivered at each Time of Delivery, shall be subject, in their discretion, to the condition that all representations and warranties and other statements of the Company herein are, at and as of the Applicable Time and such Time of Delivery, true and correct, the condition that the Company shall have performed all of its obligations hereunder theretofore to be performed, and the following additional conditions:

(a) The Prospectus shall have been filed with the Commission pursuant to Rule 424(b) under the Act within the applicable time period prescribed for such filing by the rules and regulations under the Act and in accordance with Section 5(a) hereof; all material required to be filed by the Company pursuant to Rule 433(d) under the Act shall have been filed with the Commission within the applicable time period prescribed for such filings by Rule 433; no stop order suspending the effectiveness of the Registration Statement or any part thereof shall have been issued and no proceeding for that purpose or pursuant to Section 8A of the Act shall have been initiated or threatened by the Commission and no notice of objection of the Commission to the use of the Registration Statement or any post-effective amendment thereto pursuant to Rule 401(g)(2) under the Act shall have been received; no stop order suspending or preventing the use of the Preliminary Prospectus, Prospectus or any Issuer Free Writing Prospectus shall have been initiated or threatened by the Commission; and all requests for additional

information on the part of the Commission shall have been complied with to your reasonable satisfaction;

(b) Cooley LLP, counsel for the Underwriters, shall have furnished to the Representatives such written opinion or opinions, dated such Time of Delivery, in form and substance satisfactory to the Representatives, with respect to such matters as the Representatives may reasonably request, and such counsel shall have received such papers and information as they may reasonably request to enable them to pass upon such matters;

(c) Goodwin Procter LLP, counsel for the Company, shall have furnished to the Representatives their written opinion and negative assurance letter, dated such Time of Delivery, in form and substance satisfactory to the Representatives;

(d) Global Patent Group, LLC, intellectual property counsel for the Company, shall have furnished to the Representatives their written opinion and negative assurance letter, dated such Time of Delivery, in form and substance satisfactory to the Representatives;

(e) On the date of the Prospectus at a time prior to the execution of this Agreement, at 9:30 a.m., New York City time, on the effective date of any post-effective amendment to the Registration Statement filed subsequent to the date of this Agreement and also at each Time of Delivery, KPMG LLP shall have furnished to the Representatives a letter or letters, dated the respective dates of delivery thereof, in form and substance satisfactory to the Representatives;

(f) (i) Neither the Company nor its subsidiary shall have sustained since the date of the latest audited financial statements included or incorporated by reference in the Pricing Prospectus and the Prospectus any loss or interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree, otherwise than as set forth or contemplated in the Pricing Prospectus and the Prospectus, and (ii) since the respective dates as of which information is given in the Pricing Prospectus and the Prospectus there shall not have been any change in the capital stock (other than as a result of the exercise of stock options or the award of stock options or restricted stock in the ordinary course of business pursuant to the Company's equity plans that are described in the Pricing Prospectus) or long-term debt of the Company or its subsidiary or any change or effect, or any development involving a prospective change or effect, in or affecting (x) the business, properties, general affairs, management, financial position, stockholders' equity, or results of operations of the Company and its subsidiary, taken as a whole, except as set forth or contemplated in the Pricing Prospectus and the Prospectus, or (y) the ability of the Company to perform its obligations under this Agreement, including the issuance and sale of the Shares, or to consummate the transactions contemplated in the Pricing Prospectus and the Prospectus, the

effect of which, in any such case described in clause (i) or (ii), is in your judgment so material and adverse as to make it impracticable or inadvisable to proceed with the public offering or the delivery of the Shares being delivered at such Time of Delivery on the terms and in the manner contemplated in the Pricing Prospectus and the Prospectus;

(g) On or after the Applicable Time there shall not have occurred any of the following: (i) a suspension or material limitation in trading in securities generally on the New York Stock Exchange or on the Nasdaq; (ii) a suspension or material limitation in trading in the Company's securities on the Nasdaq; (iii) a general moratorium on commercial banking activities declared by either Federal, Commonwealth of Massachusetts or New York State authorities or a material disruption in commercial banking or securities settlement or clearance services in the United States; (iv) the outbreak or escalation of hostilities involving the United States or the declaration by the United States of a national emergency or war or (v) the occurrence of any other calamity or crisis or any change in financial, political or economic conditions in the United States or elsewhere, if the effect of any such event specified in clause (iv) or (v) in your judgment makes it impracticable or inadvisable to proceed with the public offering or the delivery of the Shares being delivered at such Time of Delivery on the terms and in the manner contemplated in the Pricing Prospectus and the Prospectus;

(h) The Shares to be sold at such Time of Delivery shall have been duly listed, subject to notice of issuance, on the Nasdaq;

(i) The Company shall have obtained and delivered to the Underwriters executed copies of an agreement from each director, officer and certain other security holders of the Company listed on Schedule III hereof, substantially to the effect set forth in Annex I hereof in form and substance satisfactory to the Representatives;

(j) The Company shall have complied with the provisions of Section 5(e) hereof with respect to the furnishing of prospectuses on the New York Business Day next succeeding the date of this Agreement; and

(k) The Company shall have furnished or caused to be furnished to you at such Time of Delivery certificates of officers of the Company satisfactory to you as to the accuracy of the representations and warranties of the Company herein at and as of such Time of Delivery, as to the performance by the Company of all of its obligations hereunder to be performed at or prior to such Time of Delivery, as to the matters set forth in subsections (a) and (f) of this Section and as to such other matters as you may reasonably request.

9.(a) The Company will indemnify and hold harmless each Underwriter and agents of each Underwriter against any losses, claims, damages or liabilities, joint

or several, to which such indemnified party may become subject, under the Act or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, the Basic Prospectus, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or any amendment or supplement thereto, any Issuer Free Writing Prospectus, any "roadshow" as defined in Rule 433(h) under the Act (a "roadshow"), any "issuer information" filed or required to be filed pursuant to Rule 433(d) under the Act, or any Written Testing-the-Waters Communication, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, and will reimburse each such indemnified party for any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim as such expenses are incurred; *provided*, however, that the Company shall not be liable in any such case to the extent that any such loss, claim, damage or liability arises out of or is based upon an untrue statement or alleged untrue statement or omission or alleged omission made in the Registration Statement, the Basic Prospectus, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or any amendment or supplement thereto, or any Issuer Free Writing Prospectus, any road show, or any Written Testing-the-Waters Communication, in reliance upon and in conformity with the Underwriter Information.

(b) Each Underwriter, severally and not jointly, will indemnify and hold harmless the Company against any losses, claims, damages or liabilities to which the Company may become subject, under the Act or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, the Basic Prospectus, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or any amendment or supplement thereto, or any Issuer Free Writing Prospectus, or any roadshow or any Written Testing-the-Waters Communication, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in the Registration Statement, the Basic Prospectus, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or any amendment or supplement thereto, or any Issuer Free Writing Prospectus, or any roadshow or any Written Testing-the-Waters Communication, in reliance upon and in conformity with the Underwriter Information; and will reimburse the Company for any legal or other expenses reasonably incurred by the Company in connection with investigating or defending any such action or claim as such expenses are incurred. As used in this Agreement with respect to an Underwriter and an applicable document, "Underwriter Information" shall mean the

written information furnished to the Company by such Underwriter through the Representatives expressly for use therein; it being understood and agreed upon that the only such information furnished by any Underwriter consists of the following information in the Prospectus furnished on behalf of each Underwriter: the concession and reallocation figures appearing in the sixth paragraph under the caption "Underwriting", and the information contained in the thirteenth, fourteenth and fifteenth paragraphs under the caption "Underwriting".

(c) Promptly after receipt by an indemnified party under subsection (a) or (b) of this Section 9 of notice of the commencement of any action, such indemnified party shall, if a claim in respect thereof is to be made against the indemnifying party under such subsection, notify the indemnifying party in writing of the commencement thereof; provided that the failure to notify the indemnifying party shall not relieve it from any liability that it may have under the preceding paragraphs of this Section 9 except to the extent that it has been materially prejudiced (through the forfeiture of substantive rights or defenses) by such failure; and provided further that the failure to notify the indemnifying party shall not relieve it from any liability that it may have to an indemnified party otherwise than under the preceding paragraphs of this Section 9. In case any such action shall be brought against any indemnified party and it shall notify the indemnifying party of the commencement thereof: (1) in the case of a civil proceeding (excluding, for the avoidance of doubt, any governmental, regulatory or non-civil proceeding), the indemnifying party shall be entitled to participate in such civil proceeding and, to the extent that it shall wish, jointly with any other indemnifying party similarly notified, to assume the defense thereof, with counsel reasonably satisfactory to such indemnified party (who shall not, except with the consent of the indemnified party, be counsel to the indemnifying party) and shall pay the fees and expenses of such counsel related to such civil proceeding, and, after notice from the indemnifying party to such indemnified party of its election to assume the defense of such civil proceeding, the indemnifying party shall not be liable to such indemnified party under such subsection for any legal expenses of other counsel or any other expenses, in each case, subsequently incurred by such indemnified party in connection with the defense thereof, other than reasonable costs of investigation; and (2) in case any governmental, regulatory or non-civil proceeding, upon request of the indemnified party, the indemnifying 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 governmental, regulatory or non-civil proceeding and shall pay the fees and disbursements of such counsel related to such governmental, regulatory or non-civil proceeding. 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. No indemnifying party shall, without the written

consent of the indemnified party, effect the settlement or compromise of, or consent to the entry of any judgment with respect to, any pending or threatened action or claim in respect of which indemnification or contribution may be sought hereunder (whether or not the indemnified party is an actual or potential party to such action or claim) unless such settlement, compromise or judgment (i) includes an unconditional release of the indemnified party from all liability arising out of such action or claim and (ii) does not include a statement as to or an admission of fault, culpability or a failure to act, by or on behalf of any indemnified party.

(d) If the indemnification provided for in this Section 9 is unavailable to or insufficient to hold harmless an indemnified party under subsection (a) or (b) above in respect of any losses, claims, damages or liabilities (or actions in respect thereof) referred to therein, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of such losses, claims, damages or liabilities (or actions in respect thereof) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other from the offering of the Shares. If, however, the allocation provided by the immediately preceding sentence is not permitted by applicable law, then each indemnifying party shall contribute to such amount paid or payable by such indemnified party in such proportion as is appropriate to reflect not only such relative benefits but also the relative fault of the Company on the one hand and the Underwriters on the other in connection with the statements or omissions which resulted in such losses, claims, damages or liabilities (or actions in respect thereof), as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriters on the other shall be deemed to be in the same proportion as the total net proceeds from the offering (before deducting expenses) received by the Company bear to the total underwriting discounts and commissions received by the Underwriters, in each case as set forth in the table on the cover page of the Prospectus. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company on the one hand or the Underwriters on the other and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and the Underwriters agree that it would not be just and equitable if contribution pursuant to this subsection (d) 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 which does not take account of the equitable considerations referred to above in this subsection (d). The amount paid or payable by an indemnified party as a result of the losses, claims, damages or liabilities (or actions in respect thereof) referred to above in this subsection (d) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim. Notwithstanding the provisions of this subsection (d), 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 which 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 Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations in this subsection (d) to contribute are several in proportion to their respective underwriting obligations and not joint.

(e) The obligations of the Company under this Section 9 shall be in addition to any liability which the Company may otherwise have and shall extend, upon the same terms and conditions, to each employee, officer and director of each Underwriter and each person, if any, who controls any Underwriter within the meaning of the Act and each broker-dealer or other affiliate of any Underwriter; and the obligations of the Underwriters under this Section 9 shall be in addition to any liability which the respective Underwriters may otherwise have and shall extend, upon the same terms and conditions, to each officer and director of the Company and to each person, if any, who controls the Company within the meaning of the Act.

10.(a) If any Underwriter shall default in its obligation to purchase the Shares which it has agreed to purchase hereunder at a Time of Delivery, you may in your discretion arrange for you or another party or other parties to purchase such Shares on the terms contained herein. If within thirty-six hours after such default by any Underwriter you do not arrange for the purchase of such Shares, then the Company shall be entitled to a further period of thirty-six hours within which to procure another party or other parties satisfactory to you to purchase such Shares on such terms. In the event that, within the respective prescribed periods, you notify the Company that you have so arranged for the purchase of such Shares, or the Company notifies you that it has so arranged for the purchase of such Shares, you or the Company shall have the right to postpone such Time of Delivery for a period of not more than seven days, in order to effect whatever changes may thereby be made necessary in the Registration Statement or the Prospectus, or in any other documents or arrangements, and the Company agrees to file promptly any amendments or supplements to the Registration Statement or the Prospectus which in your opinion may thereby be made necessary. The term "Underwriter" as used in this Agreement shall include any person substituted under this Section with like effect as if such person had originally been a party to this Agreement with respect to such Shares.

(b) If, after giving effect to any arrangements for the purchase of the Shares of a defaulting Underwriter or Underwriters by you and the Company as provided in subsection (a) above, the aggregate number of such Shares which remains unpurchased does not exceed one-eleventh of the aggregate number of

all the Shares to be purchased at such Time of Delivery, then the Company shall have the right to require each non-defaulting Underwriter to purchase the number of shares which such Underwriter agreed to purchase hereunder at such Time of Delivery and, in addition, to require each non-defaulting Underwriter to purchase its pro rata share (based on the number of Shares which such Underwriter agreed to purchase hereunder) of the Shares of such defaulting Underwriter or Underwriters for which such arrangements have not been made; but nothing herein shall relieve a defaulting Underwriter from liability for its default.

(c) If, after giving effect to any arrangements for the purchase of the Shares of a defaulting Underwriter or Underwriters by you and the Company as provided in subsection (a) above, the aggregate number of such Shares which remains unpurchased exceeds one-eleventh of the aggregate number of all the Shares to be purchased at such Time of Delivery, or if the Company shall not exercise the right described in subsection (b) above to require non-defaulting Underwriters to purchase Shares of a defaulting Underwriter or Underwriters, then this Agreement (or, with respect to the Second Time of Delivery, the obligations of the Underwriters to purchase and of the Company to sell the Optional Shares) shall thereupon terminate, without liability on the part of any non-defaulting Underwriter or the Company, except for the expenses to be borne by the Company and the Underwriters as provided in Section 7 hereof and the indemnity and contribution agreements in Section 9 hereof; but nothing herein shall relieve a defaulting Underwriter from liability for its default.

11. The respective indemnities, rights of contribution, agreements, representations, warranties and other statements of the Company and the several Underwriters, as set forth in this Agreement or made by or on behalf of them, respectively, pursuant to this Agreement, shall remain in full force and effect, regardless of any investigation (or any statement as to the results thereof) made by or on behalf of any Underwriter or any director, officer, employee, affiliate or controlling person of any Underwriter, or the Company, or any officer or director or controlling person of the Company, and shall survive delivery of and payment for the Shares.

12. If this Agreement shall be terminated pursuant to Section 10 hereof, the Company shall not then be under any liability to any Underwriter except as provided in Sections 7 and 9 hereof; but, if for any other reason, (a) prior to the First Time of Delivery, any Shares are not delivered by or on behalf of the Company as provided herein, the Company will reimburse the Underwriters through you for all out-of-pocket expenses approved in writing by you, including fees and disbursements of counsel, reasonably incurred by the Underwriters in making preparations for the purchase, sale and delivery of the Shares not so delivered, but the Company shall then be under no further liability to any Underwriter except as provided in Sections 7 and 9 hereof, and (b) after the First Time of Delivery but prior

to the Second Time of Delivery with respect to the purchase of Optional Shares pursuant to a notice delivered by the Representatives to the Company, any Optional Shares are not delivered by or on behalf of the Company as provided herein, the Company will reimburse the Underwriters through you for all out-of-pocket expense reasonably incurred after the First Time of Delivery, including fees and disbursements of counsel, by the Underwriters in making preparations for the purchase, sale and delivery of such Optional Shares not so delivered, but the Company shall then be under no further liability to any Underwriter except as provided in Sections 7 and 9 hereof.

13. In all dealings hereunder, you shall act on behalf of each of the Underwriters, and the parties hereto shall be entitled to act and rely upon any statement, request, notice or agreement on behalf of any Underwriter made or given by the Representatives on behalf of the Underwriters.

All statements, requests, notices and agreements hereunder shall be in writing, and (A) if to the Underwriters shall be delivered or sent by mail, telex or facsimile transmission to you as the Representatives (i) in care of Goldman Sachs & Co. LLC, 200 West Street, New York, New York 10282-2198, Attention: Registration Department; (ii) in care of J.P. Morgan Securities LLC, 383 Madison Avenue, New York, New York 10179 (fax: (212) 622-8358), Attention: Equity Syndicate Desk; and (iii) in care of Morgan Stanley & Co. LLC, 1585 Broadway, New York New York 10036, Attention: Equity Syndicate Desk, with a copy to the Legal Department and (B) if to the Company shall be delivered or sent by mail, telex or facsimile transmission to the address of the Company set forth on the cover of the Registration Statement, Attention: Secretary; provided, however, that any notice to an Underwriter pursuant to Section 9(c) hereof shall be delivered or sent by mail, telex or facsimile transmission to such Underwriter at its address set forth in its Underwriters' Questionnaire, or telex constituting such Questionnaire, which address will be supplied to the Company by you upon request. Any such statements, requests, notices or agreements shall take effect upon receipt thereof.

In accordance with the requirements of the USA Patriot Act (Title III of Pub. L. 107-56 (signed into law October 26, 2001)), the Underwriters are required to obtain, verify and record information that identifies their respective clients, including the Company, which information may include the name and address of their respective clients, as well as other information that will allow the Underwriters to properly identify their respective clients.

14. This Agreement shall be binding upon, and inure solely to the benefit of, the Underwriters, the Company and, to the extent provided in Sections 9 and 11 hereof, the officers and directors of the Company and each person who controls the Company or any Underwriter, or any director, officer, employee, or affiliate of any Underwriter, and their respective heirs, executors, administrators, successors and

assigns, and no other person shall acquire or have any right under or by virtue of this Agreement. No purchaser of any of the Shares from any Underwriter shall be deemed a successor or assign by reason merely of such purchase.

15. Time shall be of the essence of this Agreement. As used herein, the term "business day" shall mean any day when the Commission's office in Washington, D.C. is open for business.

16. The Company acknowledges and agrees that (i) the purchase and sale of the Shares pursuant to this Agreement is an arm's-length commercial transaction between the Company, on the one hand, and the several Underwriters, on the other, (ii) in connection therewith and with the process leading to such transaction each Underwriter is acting solely as a principal and not the agent or fiduciary of the Company, (iii) no Underwriter has assumed an advisory or fiduciary responsibility in favor of the Company with respect to the offering contemplated hereby or the process leading thereto (irrespective of whether such Underwriter has advised or is currently advising the Company on other matters) or any other obligation to the Company except the obligations expressly set forth in this Agreement, (iv) the Company has consulted its own legal and financial advisors to the extent it deemed appropriate, and (v) 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 agrees that it will not claim that the Underwriters, or any of them, has rendered advisory services of any nature or respect, or owes a fiduciary or similar duty to the Company, in connection with such transaction or the process leading thereto.

17. This Agreement supersedes all prior agreements and understandings (whether written or oral) between the Company and the Underwriters, or any of them, with respect to the subject matter hereof.

18. This Agreement and any transaction contemplated by this Agreement shall be governed by and construed in accordance with the laws of the State of New York without regard to principles of conflict of laws that would result in the application of any other law than the laws of the State of New York. The Company agrees that any suit or proceeding arising in respect of this Agreement or any transaction contemplated by this Agreement will be tried exclusively in the U.S. District Court for the Southern District of New York or, if that court does not have subject matter jurisdiction, in any state court located in The City and County of New York and the Company agrees to submit to the jurisdiction of, and to venue in, such courts.

19. The Company and each of the Underwriters hereby irrevocably waives, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Agreement or the transactions contemplated hereby.

20. This Agreement may be executed by any one or more of the parties hereto in any number of counterparts, each of which shall be deemed to be an original, but all such respective counterparts shall together constitute one and the same instrument. Counterparts may be delivered via facsimile, electronic mail (including any electronic signature covered by the U.S. federal E-SIGN Act of 2000, Uniform Electronic Transactions Act, the Electronic Signatures and Records Act or other applicable law, e.g., www.docusign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

21. Notwithstanding anything herein to the contrary, the Company is authorized to disclose to any persons the U.S. federal and state income tax treatment and tax structure of the potential transaction and all materials of any kind (including tax opinions and other tax analyses) provided to the Company relating to that treatment and structure, without the Underwriters imposing any limitation of any kind. However, any information relating to the tax treatment and tax structure shall remain confidential (and the foregoing sentence shall not apply) to the extent necessary to enable any person to comply with securities laws. For this purpose, "tax structure" is limited to any facts that may be relevant to that treatment.

22. All payments made or deemed to be made by the Company to the Underwriters, their respective affiliates, directors, officers, employees and agents or to any person controlling any Underwriter under this Agreement, if any, will be made without withholding or deduction for or on account of any present or future taxes, duties, assessments or governmental charges of whatever nature unless the Company is or becomes required by law to withhold or deduct such taxes, duties, assessments or other governmental charges. In such event, the Company will pay such additional amounts as will result, after such withholding or deduction, in the receipt by each Underwriter, their respective affiliates, directors, officers, employees and each person controlling any Underwriter, as the case may be, of the amounts that would otherwise have been receivable in respect thereof.

23. 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.

(c) As used in this section:

“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.

[Signature Page Follows]

If the foregoing is in accordance with your understanding, please sign and return to us one for the Company and each of the Representatives plus one for each counsel counterparts hereof, and upon the acceptance hereof by you, on behalf of each of the Underwriters, this letter and such acceptance hereof shall constitute a binding agreement between each of the Underwriters and the Company. It is understood that your acceptance of this letter on behalf of each of the Underwriters is pursuant to the authority set forth in a form of Agreement among Underwriters, the form of which shall be submitted to the Company for examination upon request, but without warranty on your part as to the authority of the signers thereof.

Very truly yours,

Karuna Therapeutics, Inc.

By: /s/ Troy Ignelzi

Name: Troy Ignelzi

Title: Chief Financial Officer

[Signature Page to Underwriting Agreement]

Accepted as of the date hereof:

Goldman Sachs & Co. LLC

By: /s/ Dan Cocks

Name: Dan Cocks

Title: Managing Director

J.P. Morgan Securities LLC

By: /s/ David Ke

Name: David Ke

Title: Managing Director

Morgan Stanley & Co. LLC

By: /s/ Chirag D. Surti

Name: Chirag D. Surti

Title: Executive Director

On behalf of each of the Underwriters

[Signature Page to Underwriting Agreement]

SCHEDULE I

Underwriter	Total Number of Firm Shares to be Purchased	Number of Optional Shares to be Purchased if Maximum Option Exercised
Goldman Sachs & Co. LLC	892,581	1,026,468
J.P. Morgan Securities LLC	706,627	812,621
Morgan Stanley & Co. LLC	533,069	613,030
Stifel, Nicolaus & Company, Incorporated	173,557	199,590
Guggenheim Securities, LLC	173,557	199,590
Total	<u>2,479,391</u>	<u>2,851,299</u>

SCHEDULE II

(a) Issuer Free Writing Prospectuses not included in the Pricing Disclosure Package:

None

(b) Additional Documents Incorporated by Reference:

None

(c) Information other than the Pricing Prospectus that comprises the Pricing Disclosure Package:

The public offering price per share for the Shares is \$161.33

The number of Shares purchased by the Underwriters is 2,479,391

The number of shares potentially issuable by the Company pursuant to the option to purchase additional shares is 371,908

(d) Written Testing-the-Waters Communications:

None

SCHEDULE III

Bill Meury
Stephen Brannan, M.D.
Troy A. Ignelzi
Andrew Miller, Ph.D.
Christopher J. Coughlin
James Healy, M.D., Ph.D.
Jeffrey Jonas, M.D.
Laurie Olson
Atul Pande, M.D.
Steve Paul, M.D.
Denice Torres
David Wheadon, M.D.

Form of Lock-Up Agreement

March [●], 2023

Goldman Sachs & Co. LLC
J.P. Morgan Securities LLC
Morgan Stanley & Co. LLC

As representatives of the several Underwriters
named in Schedule I to the Underwriting Agreement

c/o Goldman Sachs & Co. LLC
200 West Street
New York, New York 10282-2198

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

c/o Morgan Stanley & Co. LLC
1585 Broadway
New York, NY 10036

Re: Karuna Therapeutics, Inc. - Lock-Up Agreement

Ladies and Gentlemen:

The undersigned understands that you, as representatives (the “**Representatives**”), propose to enter into an underwriting agreement (the “**Underwriting Agreement**”) on behalf of the several Underwriters named in Schedule I to such agreement (collectively, the “**Underwriters**”), with Karuna Therapeutics, Inc., a Delaware corporation (the “**Company**”), providing for a public offering (the “**Public Offering**”) of the Common Stock of the Company (the “**Shares**”) pursuant to a Registration Statement on Form S-3 (the “**Registration Statement**”) filed with the Securities and Exchange Commission (the “**SEC**”).

In consideration of the agreement by the Underwriters to offer and sell the Shares, and of other good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the undersigned agrees that, during the period beginning from the date of this Lock-Up Agreement and continuing to and including the date 45 days after the date set forth on the final prospectus supplement (the “**Final Prospectus Supplement**”) covering the

Public Offering (the “**Lock-Up Period**”), the undersigned will not, and will not publicly disclose an intention to, offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale or otherwise dispose of any shares of Common Stock of the Company, or any options or warrants to purchase any shares of Common Stock of the Company, or any securities convertible into, exchangeable for or that represent the right to receive shares of Common Stock of the Company, whether now owned or hereinafter acquired, owned directly by the undersigned (including holding as a custodian) or with respect to which the undersigned has beneficial ownership within the rules and regulations of the SEC (collectively the “**Undersigned’s Shares**”). The foregoing restriction is expressly agreed to preclude the undersigned from engaging in any hedging or other transaction which is designed to or which reasonably could be expected to lead to or result in a sale or disposition of the Undersigned’s Shares even if such Shares would be disposed of by someone other than the undersigned. Such prohibited hedging or other transactions would include without limitation any short sale or any purchase, sale or grant of any right (including without limitation any put or call option) with respect to any of the Undersigned’s Shares or with respect to any security that includes, relates to, or derives any significant part of its value from such Shares. In addition, the undersigned agrees that, without the prior written consent of the Representatives on behalf of the Underwriters, it will not, during the Lock-Up Period, make any demand for or exercise any right with respect to, the registration of any Shares or any security convertible into or exercisable or exchangeable for Shares.

Notwithstanding the foregoing, the undersigned may transfer the Undersigned’s Shares (i) acquired in the Public Offering or in transactions relating to the Shares or other securities acquired in open market transactions after the date of the final prospectus, (ii) as a *bona fide* gift or gifts, provided that the donee or donees thereof agree to be bound in writing by the restrictions set forth herein and provided that any filing made pursuant to Section 16(a) of the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”), shall include a footnote noting the circumstances described in this clause, (iii) to any immediate family member of the undersigned or any trust for the direct or indirect benefit of the undersigned or the immediate family of the undersigned, provided that any such transfer shall not involve a disposition for value, (iv) by will or intestate succession upon the death of the undersigned, provided that any filing made pursuant to Section 16(a) of the Exchange Act, shall include a footnote noting the circumstances described in this clause, (v) by operation of law or by order of a court of competent jurisdiction pursuant to a qualified domestic order or in connection with a divorce settlement, provided that any filing made pursuant to Section 16(a) of the Exchange Act, shall include a footnote noting the circumstances described in this clause, (vi) by surrender or forfeiture of Shares or other securities of the Company to the Company to satisfy tax withholding obligations upon exercise or vesting or the exercise price upon a cashless net exercise, in each case, of stock options, restricted stock, other equity awards, warrants or other right to acquire Shares, provided that any filing made pursuant to Section 16(a) of the Exchange Act shall include a footnote noting the circumstances described in this clause, (vii) pursuant to a distribution to partners, members or stockholders of the undersigned, (viii) pursuant to a bona fide third party tender offer, merger, consolidation or other similar transaction made to all holders of the Shares involving a Change of Control (as defined

below) of the Company after the closing of the Public Offering and approved by the Company's board of directors, provided that in the event that the tender offer, merger, consolidation or other such transaction is not completed, the Shares owned by the undersigned shall remain subject to the restrictions contained in this agreement, (ix) under a trading plan pursuant to Rule 10b5-1 (a "**10b5-1 Plan**") under the Exchange Act that is existing on the date hereof which has been provided or otherwise disclosed to the Representatives or their legal counsel, provided that any filing made pursuant to Section 16(a) of the Exchange Act shall include a footnote, or other such disclosure prescribed by the filing, disclosing the circumstances described in this clause, or (x) with the prior written consent of the Representatives on behalf of the Underwriters. For purposes of this Lock-Up Agreement, "immediate family" shall mean any relationship by blood, marriage or adoption, not more remote than first cousin. In addition, notwithstanding the foregoing, if the undersigned is a corporation, the corporation may transfer the capital stock of the Company to any wholly owned subsidiary of such corporation; provided, however, that in any such case, other than in the case of clauses (i), (vi), (viii) and (ix) above, it shall be a condition to the transfer that the transferee execute an agreement stating that the transferee is receiving and holding such capital stock subject to the provisions of this Lock-Up Agreement and there shall be no further transfer of such capital stock except in accordance with this Lock-Up Agreement, and provided further that any such transfer shall not involve a disposition for value. The undersigned also agrees and consents to the entry of stop transfer instructions with the Company's transfer agent and registrar against the transfer of the Undersigned's Shares except in compliance with the foregoing restrictions.

Notwithstanding the foregoing, nothing in this Lock-Up Agreement shall prohibit the exercise of any option, warrant or other rights to acquire the Company's Shares or other securities, the settlement of any share-settled share appreciation rights, restricted shares or restricted share units or the conversion of any convertible security into Shares, in each case described in the Final Prospectus Supplement or described in a document incorporated by reference into the Registration Statement, provided that the Shares or other securities remain subject to this Lock-Up Agreement. In addition, with respect to clauses (i), (iii), (iv), (v), (vi), (vii) and (ix) above, it shall be a condition to such transfer that no filing under Section 13 or Section 16(a) of the Exchange Act nor any other public filing or disclosure of such transfer by or on behalf of the undersigned shall be required or voluntarily made during the Lock-Up Period, except as contemplated by clauses (iv), (v), (vi) and (ix) above.

In addition, the undersigned may enter into a 10b5-1 Plan under the Exchange Act (other than the entry into such a plan in such a manner as to allow the sale of Shares, in each case, within the Lock-Up Period); provided however, no sale of Shares may be made under such 10b5-1 Plan during the Lock-Up Period and any required public disclosure during the Lock-up Period regarding such 10b5-1 Plan includes the restrictions set forth in this Lock-Up Agreement.

For purposes of this Lock-Up Agreement, "Change of Control" shall mean the consummation of any bona fide third party tender offer, merger, amalgamation, consolidation

or other similar transaction the result of which is that any “person” (as defined in Section 13(d)(3) of the Exchange Act), or group of persons, other than the Company, becomes the beneficial owner (as defined in Rules 13d-3 and 13d-5 of the Exchange Act) of 50% of the total voting power of the voting shares of the Company.

If the undersigned is not a natural person, the undersigned represents and warrants that no single natural person, entity or “group” (within the meaning of Section 13(d)(3) of the Exchange Act), other than a natural person, entity or “group” (as described above) that has executed a Lock-Up Agreement in substantially the same form as this Lock-Up Agreement, beneficially owns, directly or indirectly, 50% or more of the common equity interests, or 50% or more of the voting power, in the undersigned.

The undersigned acknowledges and agrees that none of the Underwriters has made any recommendation or provided any investment or other advice to the undersigned with respect to this Lock-Up Agreement or the subject matter hereof, and the undersigned has consulted its own legal, accounting, financial, regulatory, tax and other advisors with respect to this Lock-Up Agreement and the subject matter hereof to the extent the undersigned has deemed appropriate. The undersigned further acknowledges and agrees that, although the Underwriters may have provided or hereafter provide to the undersigned in connection with the Public Offering a Form CRS and/or certain other disclosures as contemplated by Regulation Best Interest, the Underwriters have not made and are not making a recommendation to the undersigned to enter into this Lock-Up Agreement or to transfer, sell or dispose of, or to refrain from transferring, selling or disposing of, any shares of Common Stock, and nothing set forth in such disclosures or herein is intended to suggest that any Underwriter is making such a recommendation.

Notwithstanding anything to the contrary contained herein, this Lock-Up Agreement will automatically terminate and the undersigned will be released from all of his, her or its obligations hereunder upon the earliest to occur, if any, of (i) prior to the execution of the Underwriting Agreement, the Company advises the Representatives in writing that it has determined not to proceed with the Public Offering of the Shares, (ii) the Underwriting Agreement is executed but is terminated (other than the provisions thereof which survive termination) prior to payment for and delivery of the Shares to be sold thereunder, or (iii) April 30, 2023, in the event that the Underwriting Agreement has not been executed by such date; provided, however, that the Company may, by written notice to you prior to such date, extend such date for a period of up to three additional months.

The undersigned now has, and, except as contemplated by clauses (i)-(x) of the third paragraph of this Lock-Up Agreement, for the duration of this Lock-Up Agreement will have, good and marketable title to the Undersigned’s Shares, free and clear of all liens, encumbrances and claims whatsoever.

The undersigned understands that the Company and the Underwriters are relying upon this Lock-Up Agreement in proceeding toward consummation of the Public Offering. The undersigned further understands that this Lock-Up Agreement is irrevocable and shall be

binding upon the undersigned's heirs, legal representatives, successors, and assigns. The undersigned hereby represents and warrants that the undersigned has full power and authority to enter into this Lock-Up Agreement. This Lock-Up Agreement shall be governed by, and construed in accordance with, the laws of the State of New York, without regard to principles of conflict of laws that would result in the application of any law other than the laws of the State of New York. This Lock-Up Agreement may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, e.g., www.docusign.com or www.echosign.com) or other transmission method, and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

Very truly yours,

Name of Security Holder (*Print exact name*)

By:

Signature

If not signing in an individual capacity:

Name of Authorized Signatory (*Print*)

Title of Authorized Signatory (*Print*)

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



Goodwin Procter LLP
The New York Times Building
620 Eighth Avenue
New York, NY 10018

goodwinlaw.com
+1 212 813 8800

March 22, 2023

Karuna Therapeutics, Inc.
99 High St. Floor 26
Boston, MA 02110

Re: Securities Registered under Registration Statement on Form S-3

We have acted as counsel to you in connection with your filing of a Registration Statement on Form S-3ASR (File No. 333-239657) (as amended or supplemented, the “**Registration Statement**”) filed on July 2, 2020 with the Securities and Exchange Commission (the “**Commission**”) pursuant to the Securities Act of 1933, as amended (the “**Securities Act**”), relating to the registration of the offer by Karuna Therapeutics, Inc., a Delaware corporation (the “**Company**”) of an indeterminate number of any combination of securities of the types specified therein. The Registration Statement became effective upon filing with the Commission. Reference is made to our opinion letter dated July 2, 2020 and included as Exhibit 5.1 to the Registration Statement. We are delivering this supplemental opinion letter in connection with the prospectus supplement (the “**Prospectus Supplement**”) filed on March 22, 2023 by the Company with the Commission pursuant to Rule 424 under the Securities Act. The Prospectus Supplement relates to the offering by the Company of up to 2,851,299 shares of the Company’s Common Stock, par value \$0.0001 per share (the “**Shares**”) covered by the Registration Statement. The Shares include an over-allotment option granted to the underwriters of the offering to purchase 371,908 Shares. The Shares are being sold to the several underwriters named in, and pursuant to, an underwriting agreement among the Company and such underwriters (the “**Underwriting Agreement**”).

We have reviewed such documents and made such examination of law as we have deemed appropriate to give the opinion set forth below. We have relied, without independent verification, on certificates of public officials and, as to matters of fact material to the opinion set forth below, on certificates of officers of the Company.

The opinion set forth below is limited to the Delaware General Corporation Law.



Based on the foregoing, we are of the opinion that the Shares have been duly authorized and, upon issuance and delivery against payment therefor in accordance with the terms of the Underwriting Agreement, the Shares will be validly issued, fully paid and non-assessable.

This opinion letter and the opinion it contains shall be interpreted in accordance with the Core Opinion Principles as published in *74 Business Lawyer* 815 (Summer 2019).

We hereby consent to the inclusion of this opinion as Exhibit 5.1 to the Registration Statement and to the references to our firm under the caption “Legal Matters” in the Registration Statement. In giving our consent, we do not admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Very truly yours,

/s/ Goodwin Procter LLP

GOODWIN PROCTER LLP

Karuna Therapeutics Announces Proposed Public Offering of Common Stock

BOSTON—March 20, 2023— Karuna Therapeutics, Inc. (NASDAQ: KRTX), a clinical-stage biopharmaceutical company driven to create and deliver transformative medicines for people living with psychiatric and neurological conditions, today announced that it has commenced an underwritten public offering of \$400.0 million of its common stock. Karuna also intends to grant the underwriters a 30-day option to purchase an additional \$60.0 million of its common stock. All the shares in the proposed offering are to be sold by Karuna.

Goldman Sachs & Co. LLC, J.P. Morgan Securities LLC, and Morgan Stanley & Co. LLC are acting as joint book-running managers for the offering. The offering is subject to market and other conditions, and there can be no assurance as to whether or when the offering may be completed, or as to the actual size or terms of the offering.

The shares are being offered by Karuna pursuant to an effective shelf registration statement that was previously filed with the Securities and Exchange Commission (“SEC”). The offering is being made only by means of a written prospectus and prospectus supplement that form a part of the registration statement. A preliminary prospectus supplement and accompanying prospectus relating to and describing the terms of the offering will be filed with the SEC and will be available on the SEC’s website at www.sec.gov.

When available, copies of the preliminary prospectus supplement relating to these securities may also be obtained from the offices of Goldman Sachs & Co. LLC, Attention: Prospectus Department, 200 West Street, New York, NY 10282, or by telephone at (866) 471-2526, or by email at prospectus-ny@ny.email.gs.com; J.P. Morgan Securities LLC, Attention: Broadridge Financial Solutions, 1155 Long Island Avenue, Edgewood, NY 11717, or by telephone at (866) 803-9204, or by email at prospectus-eg_fi@jpmchase.com; or Morgan Stanley & Co. LLC, 180 Varick St, 2nd Floor, New York, NY 10014. The final terms of the offering will be disclosed in a final prospectus supplement to be filed with the SEC.

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

About Karuna Therapeutics

Karuna Therapeutics is a clinical-stage biopharmaceutical company driven to create and deliver transformative medicines for people living with psychiatric and neurological conditions.

Forward Looking Statements

This press release contains forward looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, including among other things, the size and completion of the proposed public offering, and other statements identified by words such as “could,” “expects,” “intends,” “may,” “plans,” “potential,” “should,” “will,” “would,” or similar expressions and the negatives of those terms. Forward-looking statements are not promises or guarantees of future performance, and are subject to a variety of risks and uncertainties, many of which are beyond our control.

Actual results could differ materially from those anticipated in such forward-looking statements as a result of various risks and uncertainties, which include, without limitation, market risks, the final terms of the offering, and uncertainties and the satisfaction of customary closing conditions for an offering of securities. There can be no assurance that Karuna will be able to complete the public offering on the anticipated terms, or at all. These and other risks are described under the heading "Risk Factors" in Karuna's most recent Annual Report on Form 10-K filed with the SEC and in other filings that Karuna makes with the SEC. Karuna's actual results could differ materially from the results described in or implied by such forward-looking statements. Forward-looking statements speak only as of the date hereof, and, except as required by law, Karuna undertakes no obligation to update or revise these forward-looking statements.

Investors:

Alexis Smith
+1 (518) 338-8990
asmith@karunatx.com

Media:

Bob Josefsberg
+1 (646) 734-3584
bjosefsberg@karunatx.com

Karuna Therapeutics Announces Pricing of Public Offering of Common Stock

BOSTON—March 21, 2023— Karuna Therapeutics, Inc. (NASDAQ: KRTX), a clinical-stage biopharmaceutical company driven to create and deliver transformative medicines for people living with psychiatric and neurological conditions, today announced the pricing of an underwritten public offering of 2,479,391 shares of its common stock at a public offering price of \$161.33 per share. The gross proceeds to Karuna from the offering, before deducting the underwriting discounts and commissions and other estimated offering expenses, are expected to be approximately \$400.0 million. The offering is expected to close on or about March 24, 2023, subject to customary closing conditions. In addition, Karuna has granted the underwriters a 30-day option to purchase up to an additional 371,908 shares of common stock. All the shares in the offering are being sold by Karuna.

Goldman Sachs & Co. LLC, J.P. Morgan Securities LLC, and Morgan Stanley & Co. LLC are acting as joint book-running managers for the offering. Stifel, Nicolaus & Company, Inc. and Guggenheim Securities, LLC are also acting as book-running managers for the offering.

The shares are being offered by Karuna pursuant to an effective shelf registration statement that was previously filed with the Securities and Exchange Commission ("SEC"). The offering is being made only by means of a written prospectus and prospectus supplement that form a part of the registration statement. A preliminary prospectus supplement relating to and describing the terms of the offering has been filed with the SEC and is available on the SEC's website at www.sec.gov.

When available, copies of the final prospectus supplement relating to these securities may also be obtained from the offices of Goldman Sachs & Co. LLC, Attention: Prospectus Department, 200 West Street, New York, NY 10282, or by telephone at (866) 471-2526, or by email at prospectus-ny@ny.email.gs.com; J.P. Morgan Securities LLC, Attention: Broadridge Financial Solutions, 1155 Long Island Avenue, Edgewood, NY 11717, or by telephone at (866) 803-9204, or by email at prospectus-eg_fi@jpmchase.com; Morgan Stanley & Co. LLC, Attention: Prospectus Department, 180 Varick Street, 2nd Floor, New York, New York 10014; Stifel, Nicolaus & Company, Incorporated, Attention: Prospectus Department, One Montgomery Street, Suite 3700, San Francisco, CA 94104 or by telephone at (415) 364-2720 or by email at syndprospectus@stifel.com; or Guggenheim Securities, LLC, Attention: Equity Syndicate Department, 330 Madison Avenue, 8th Floor, New York, New York 10017, or by telephone at (212) 518-9544 or by email at GSEquityProspectusDelivery@guggenheimpartners.com.

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

About Karuna Therapeutics

Karuna Therapeutics is a clinical-stage biopharmaceutical company driven to create and deliver transformative medicines for people living with psychiatric and neurological conditions.

Forward Looking Statements

This press release contains forward looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, including among other things, the timing and completion of the public offering, and other statements identified by words such as “could,” “expects,” “intends,” “may,” “plans,” “potential,” “should,” “will,” “would,” or similar expressions and the negatives of those terms. Forward-looking statements are not promises or guarantees of future performance, and are subject to a variety of risks and uncertainties, many of which are beyond our control. Actual results could differ materially from those anticipated in such forward-looking statements as a result of various risks and uncertainties, which include, without limitation, market risks and the satisfaction of customary closing conditions for an offering of securities. These and other risks are described under the heading “Risk Factors” in Karuna’s most recent Annual Report on Form 10-K filed with the SEC and in other filings that Karuna makes with the SEC. Karuna’s actual results could differ materially from the results described in or implied by such forward-looking statements. Forward-looking statements speak only as of the date hereof, and, except as required by law, Karuna undertakes no obligation to update or revise these forward-looking statements.

Investors:

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