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

SCHEDULE 13D
(Rule 13d-101)

Under the Securities Exchange Act of 1934
(Amendment No.)

Dicerna Pharmaceuticals, Inc.
(Name of Issuer)

Common Stock, par value \$0.0001 per share
(Title of Class of Securities)

253031108
(CUSIP Number)

Copies to:
Michael J. Harrington
General Counsel
Eli Lilly and Company
Lilly Corporate Center
Indianapolis, Indiana 46285
Tel: (317) 276-2000

Raymond O. Gietz
Weil, Gotshal & Manges LLP
767 Fifth Avenue
New York, NY 10153
(212) 310-8000

(Name, Address and Telephone Number of Person Authorized to Receive Notices and Communications)

December 19, 2018
(Date of Event Which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because § 240.13d-1(e), 240.13d-1(f) or 240.13d-1(g) check the following box .

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See § 240.13d-7(b) for other parties to whom copies are to be sent.

* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 (the "Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

1	Names of Reporting Persons ELI LILLY AND COMPANY	
2	Check the Appropriate Box if a Member of a Group (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds WC	
5	Check Box if Disclosure of Legal Proceedings Is Required Pursuant to Item 2(d) or 2(e): <input type="checkbox"/>	
6	Citizenship or Place of Organization INDIANA	
Number of Shares Beneficially Owned by Each Reporting Person With:	7	Sole Voting Power 5,414,185
	8	Shared Voting Power 0
	9	Sole Dispositive Power 5,414,185
	10	Shared Dispositive Power 0
11	Aggregate Amount Beneficially Owned by Each Reporting Person 5,414,185	
12	Check if the Aggregate Amount in Row (11) Excludes Certain Shares <input type="checkbox"/>	
13	Percent of Class Represented by Amount in Row (11) 8.6%*	
14	Type of Reporting Person CO	

* This percentage is calculated based on (i) 62,731,942 shares of the common stock (the "Common Stock") of Dicerna Pharmaceuticals, Inc., a Delaware corporation (the "Issuer"), outstanding as of November 2, 2018, as reported on the Issuer's Quarterly Report on Form 10-Q, filed with the Securities and Exchange Commission (the "SEC") on November 5, 2018, as amended on Form 10-Q/A filed with the SEC on November 7, 2018, and (ii) 5,414,185 shares of Common Stock issued to Eli Lilly and Company, an Indiana corporation (the "Reporting Person"), pursuant to the Share Issuance Agreement, dated October 25, 2018, between the Reporting Person and the Issuer.

Item 1. Security and Issuer.

This statement on Schedule 13D (this “**Statement**”) relates to the common stock, par value \$0.0001 per share (the “**Common Stock**”), of Dicerna Pharmaceuticals, Inc., a Delaware corporation (the “**Issuer**”). The principal executive offices of the Issuer are located at 87 Cambridgepark Drive, Cambridge, MA 02140.

Item 2. Identity and Background.

- (a) This Statement is being filed by Eli Lilly and Company, an Indiana corporation (the “**Reporting Person**”).
- (b) The address of the principal business and the principal office of the Reporting Person is Lilly Corporate Center, Indianapolis, Indiana 46285.
- (c) The principal business of the Reporting Person is discovering, developing, manufacturing, and selling pharmaceutical products.
- (d)-(e) During the last 5 years, neither the Reporting Person nor, to the knowledge of the Reporting Person, without independent verification, any of the persons listed on Schedule I attached hereto has been (i) convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors) or (ii) a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

The name, business address, present principal occupation or employment and citizenship of each director and executive officer (including a director and officer who may be a controlling person) of the Reporting Persons is set forth on Schedule I.

Item 3. Source and Amount of Funds or Other Consideration.

On October 25, 2018, the Issuer and the Reporting Person entered into a share issuance agreement (the “**Share Issuance Agreement**”), pursuant to which the Issuer agreed to issue and sell to the Reporting Person, and the Reporting Person agreed to purchase, 5,414,185 shares of Common Stock, at a purchase price of \$18.47 per share, for an aggregate purchase price of \$99,999,996.95. The closing of the transactions contemplated by the Share Issuance Agreement occurred on December 19, 2018. The funds used by the Reporting Person to purchase the 5,414,185 shares of Common Stock were obtained from the working capital of the Reporting Person.

The foregoing discussion does not purport to be complete, and is qualified in its entirety by the terms and conditions of the Share Issuance Agreement, a copy of which is attached hereto as Exhibit 1.

Item 4. Purpose of Transaction.

The purchase of Common Stock was made by the Reporting Person for investment purposes as part of a private offering by the Issuer made in connection with a collaboration and license agreement between the Reporting Person and the Issuer for the discovery, development, and commercialization of potential new medicines in the areas of cardio-metabolic disease, neurodegeneration, and pain.

As set forth above in Item 3, on October 25, 2018, the Issuer and the Reporting Person entered into the Share Issuance Agreement, pursuant to which the Issuer agreed to issue and sell to the Reporting Person, and the Reporting Person agreed to purchase, 5,414,185 shares of Common Stock, at a purchase price of \$18.47 per share, for an aggregate purchase price of \$99,999,996.95. The Share Issuance Agreement contains customary representations, warranties, and covenants of each party. Pursuant to the terms of the Share Issuance Agreement, the Reporting Person may not, without the prior approval of the Issuer or except in the case of a third party tender offer, dispose of any of the purchased shares of Common Stock for a nine-month period of time commencing on the closing date of the transaction, December 19, 2018.

- (a)-(j) Neither the Reporting Person nor, to the Reporting Person’s knowledge, any person listed on Schedule I hereto, currently has any plans or proposals which relate to or would result in any of the matters described in matters (a)-(j) of Item 4 of Schedule 13D. However, as part of the ongoing evaluation of this investment and other investment alternatives, the Reporting Person may consider such matters and may formulate plans or proposals with respect to any such matters, including, without limitation, from time to time, holding discussions with or making formal proposals to management or the board of directors of the Company.

The foregoing discussion does not purport to be complete, and is qualified in its entirety by the terms and conditions of the Share Issuance Agreement, a copy of which is attached hereto as Exhibit 1.

Item 5. Interest in Securities of the Issuer.

(a) The information required by this paragraph is incorporated herein by reference to the cover pages to this Statement. To the Reporting Person's knowledge, no shares of Common Stock are beneficially owned by any of the persons named in Schedule I to this Statement. The percentage of Common Stock beneficially owned by the Reporting Person is calculated based on (i) 62,731,942 shares of the Common Stock outstanding as of November 2, 2018, as reported on the Issuer's Quarterly Report on Form 10-Q, filed with the Securities and Exchange Commission (the "SEC") on November 5, 2018, as amended on Form 10-Q/A filed with the SEC on November 7, 2018, and (ii) 5,414,185 shares of Commons Stock issued to the Reporting Person, pursuant to the Share Issuance Agreement.

(b) The information required by this paragraph is incorporated herein by reference to the cover pages to this Statement.

(c) Other than the purchase of the 5,414,185 shares of Common Stock on December 19, 2018 pursuant to the Share Issuance Agreement on the terms described herein, there have been no reportable transactions with respect to the Common Stock within the past 60 days by the Reporting Person or, to the knowledge of the Reporting Person, by any person named in Schedule I to this Statement.

(d) Not applicable.

(e) Not applicable.

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer.

The information set forth in Items 3 and 4 hereof is incorporated by reference into this Item 6. Except as described in Items 3 and 4 hereof, there are no contracts, arrangements, understandings or relationships (legal or otherwise) among the Reporting Person and any other person with respect to any securities of the Issuer, including, but not limited to transfer or voting of any of the securities, finder's fees, joint ventures, loan or option arrangements, puts or calls, guarantees of profits, division of profits or loss, or the giving or withholding of proxies.

Item 7. Material to Be Filed as Exhibits.

**Exhibit
No.**

Description

1*	Share Issuance Agreement, dated as of October 25, 2018, by and between Eli Lilly and Company, an Indiana corporation, and Dicema Pharmaceuticals, Inc., a Delaware corporation
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* Filed herewith.

Signature

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: December 20, 2018

ELI LILLY AND COMPANY

/s/ Bronwen L. Mantlo

Name: Bronwen L. Mantlo

Title: Corporate Secretary

SCHEDULE I

DIRECTORS AND EXECUTIVE OFFICERS OF LILLY

The name, business address, title, and present principal occupation or employment of each of the directors and executive officers of the Reporting Person are set forth below. The address of the Reporting Person is: Lilly Corporate Center, Indianapolis, Indiana 46285. Where applicable, the business address listed for each individual not principally employed by the Reporting Person is the address of the corporation or other organization that principally employs that individual as listed below. Unless otherwise indicated, each occupation set forth opposite an individual's name refers to the Reporting Person. Unless otherwise indicated below, all of the persons listed below are citizens of the United States of America.

<u>Name</u>	<u>Present Principal Occupation Including Name and Address of Employer</u>
<i>Directors</i>	
Ralph Alvarez	Director; Operating Partner, Advent International Corporation
Katherine Baicker, Ph.D.	Director; Dean, Harris School of Public Policy, University of Chicago
Carolyn R. Bertozzi, Ph.D.	Director; Anne T. and Robert M. Bass Professor of Chemistry and Professor of Chemical & Systems Biology and Radiology, Stanford University
Michael L. Eskew	Director; Retired Chairman and Chief Executive Officer, United Parcel Service, Inc.
J. Erik Fyrwald	Director; President and Chief Executive Officer, Syngenta
Jamere Jackson	Director; Chief Financial Officer, Hertz Global Holdings Inc.
William G. Kaelin, Jr., M.D.	Director; Professor, Department of Medicine, Dana-Farber Cancer Institute and Brigham and Women's Hospital, Harvard Medical School
Juan R. Luciano	Director; Chairman and Chief Executive Officer, Archer Daniels Midland Company Citizenship: United States and Argentina
Ellen R. Marram	Director; President, The Bamegat Group LLC
David A. Ricks	Director; Chairman, President and Chief Executive Officer, Eli Lilly and Company
Marschall S. Runge, M.D., Ph.D.	Director; Executive Vice President for Medical Affairs and Medical School Dean, University of Michigan
Kathi P. Seifert	Director; Retired Executive Vice President, Kimberly-Clark Corporation
Jackson Tai	Director; Former Vice Chairman and Chief Executive Officer, DBS Group Holdings Ltd and DBS Bank Ltd
Karen Walker	Director; Senior Vice President and Chief Marketing Officer, Cisco Systems

Name*Executive Officers (Who Are Not Directors)*

Present Principal Occupation Including Name and Address of Employer

Melissa S. Barnes

Senior Vice President, Enterprise Risk Management, and Chief Ethics and Compliance Officer

Enrique A. Contemo

Senior Vice President and President, Lilly Diabetes and Lilly USA
Citizenship: United States and Peru

Stephen F. Fry

Senior Vice President, Human Resources and Diversity

Michael J. Harrington

Senior Vice President and General Counsel

Johna L. Norton

Senior Vice President, Global Quality

Myles O'Neill

Senior Vice President and President, Manufacturing Operations

Leigh Ann Pusey

Senior Vice President, Corporate Affairs and Communications

Aarti Shah, Ph.D.

Senior Vice President, Information Technology and Chief Information Officer

Christi Shaw

Senior Vice President and President, Lilly Bio-Medicines

Daniel Skovronsky, M.D., Ph.D.

Senior Vice President, Chief Scientific Officer, and President, Lilly Research Laboratories

Joshua L. Smiley

Senior Vice President and Chief Financial Officer

Anne E. White

Senior Vice President and President, Lilly Oncology

Alfonso G. Zulueta

Senior Vice President and President, Lilly International
Citizenship: Philippines

SHARE ISSUANCE AGREEMENT

THIS SHARE ISSUANCE AGREEMENT (this "**Agreement**"), is made as of October 25, 2018, by and between Eli Lilly and Company, an Indiana corporation (the "**Share Acquiror**"), and Dicema Pharmaceuticals, Inc., a Delaware corporation (the "**Company**").

WHEREAS, concurrently with the entering into of this Agreement, the Company and the Share Acquiror are entering into that certain Collaboration and License Agreement (the "**License Agreement**");

WHEREAS, pursuant to the terms and subject to the conditions set forth in this Agreement, the Company desires to issue and sell to the Share Acquiror, and the Share Acquiror desires to acquire from the Company, at the Closing (as defined below) 5,414,185 shares (the "**Shares**") of the Company's common stock, par value \$0.0001 per share ("**Common Stock**"), for an aggregate purchase price of \$99,999,996.95 (the "**Purchase Price**");

NOW, THEREFORE, in consideration of the foregoing recitals, the mutual representations, warranties, promises and obligations in the License Agreement and the following mutual representations, warranties, promises and obligations, and for other good and valuable consideration, the adequacy and sufficiency of which are hereby acknowledged, the Share Acquiror and the Company agree as follows:

1. **Definitions.**

1.1 **Defined Terms.** When used in this Agreement, the following terms shall have the respective meanings specified therefor below:

"**2014 ESPP**" means the 2014 Employee Stock Purchase Plan of the Company, as approved by the stockholders of the Company on January 28, 2014.

"**2014 Performance Incentive Plan**" means the 2014 Performance Incentive Plan of the Company, as adopted by the Board on January 14, 2014.

"**2016 Inducement Plan**" means the 2016 Inducement Plan of the Company, as adopted by the Board on March 4, 2016.

"**Affiliate**" means, with respect to a specified Person, any other Person that controls, is controlled by or is under common control with the applicable Person. As used herein, "controls", "control" and "controlled" means the possession, direct or indirect, of the power to direct the management and policies of a Person, whether through the ownership of voting interests of such Person, through Contract or otherwise; provided, that the Company and its Subsidiaries shall not be deemed Affiliates of the Share Acquiror or its Subsidiaries.

"**Agreement**" means as set forth in the Preamble, including all exhibits, schedules and appendices attached hereto.

“**Antitrust Law**” means any federal, state or foreign law, regulation or decree, including the HSR Act, designed to prohibit, restrict or regulate actions for the purpose or effect of monopolization or restraint of trade.

“**Beneficially Own**”, “**Beneficially Owned**”, “**Beneficial Ownership**” or “**Beneficial Owner**” and words of similar import have the meaning assigned to such terms pursuant to Rule 13d-3 under the Exchange Act.

“**Business Day**” means a day on which commercial banking institutions in Boston, Massachusetts and New York, New York are open for business.

“**Common Stock Equivalents**” means any options, warrants or other securities or rights convertible into or exercisable or exchangeable for, whether directly or following conversion into or exercise or exchange for other options, warrants or other securities or rights, shares of Common Stock.

“**Contract**” means, with respect to any Person, any written or oral contracts, agreements, deeds, mortgages, indentures, bonds, loans, leases, subleases, licenses, sublicense, statements of work, instruments, notes, commitments, commissions, undertakings, arrangements and understandings to which such Person is a party or by which any of its properties or assets are subject.

“**Disposition**” or “**Dispose of**” means (a) pledge, sale, contract to sell, sale of any option or Contract to purchase, purchase of any option or Contract to sell, grant of any option, right or warrant for the sale of, or other disposition of or transfer of any shares of Common Stock, or any Common Stock Equivalents, including, without limitation, any “short sale” or similar arrangement, or (b) swap, hedge, derivative instrument or any other agreement or any transaction that transfers, in whole or in part, directly or indirectly, the economic consequence of ownership of shares of Common Stock, whether any such swap or transaction is to be settled by delivery of securities, in cash or otherwise.

“**Exchange Act**” means the Securities Exchange Act of 1934, as amended.

“**Governmental Authority**” means any applicable government authority, court, tribunal, arbitrator, agency, department, legislative body, commission or other instrumentality of (a) any government of any country or territory, (b) any nation, state, province, county, city or other political subdivision thereof or (c) any supranational body.

“**HSR Act**” means the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and the rules and regulations promulgated thereunder.

“**Law**” or “**Laws**” means all laws, statutes, rules, regulations, orders, judgments, injunctions and/or ordinances of any Governmental Authority.

“**Material Adverse Effect**” shall mean any change, event or occurrence (each, an “Effect”) that, individually or when taken together with all other effects that have occurred prior to the date of determination of the occurrence of the Material Adverse Effect, is or is reasonably likely to be materially adverse to the business, financial condition, assets, liabilities or results of operations of

the Company and its Subsidiaries, taken as a whole; provided, however, that in no event shall any of the following occurring after the date hereof, alone or in combination, be deemed to constitute, or be taken into account in determining whether a Material Adverse Effect has occurred: (a) changes in the Company's industry generally or in conditions in the United States or global economy or capital or financial markets generally, including changes in interest or exchange rates, (b) any Effect caused by the announcement or pendency of the Transactions, or the identity of the Share Acquiror or any of its Affiliates as the purchaser in connection with the transactions contemplated by this Agreement or as a participant in the License Agreement, (c) the performance of this Agreement, the License Agreement and the transactions contemplated hereby and thereby, including compliance with the covenants set forth herein and therein, or any action taken or omitted to be taken by the Company at the request or with the prior consent of the Share Acquiror, (d) changes in general legal, regulatory, political, economic or business conditions occurring after the date hereof that, in each case, generally affect the biotechnology or biopharmaceutical industries, (e) acts of war, sabotage or terrorism occurring after the date hereof, or any escalation or worsening of any such acts of war, sabotage or terrorism, or (f) earthquakes, hurricanes, floods or other natural disasters occurring after the date hereof; provided, however, that with respect to clauses (a), (d), (e) and (f), such effects, alone or in combination, may be deemed to constitute, or be taken into account in determining whether a Material Adverse Effect has occurred, but only to the extent such effects disproportionately affect the Company and its Subsidiaries compared to other participants in the biotechnology or biopharmaceutical industries.

“**Material Contract**” means all Contracts that are required to be filed as exhibits by the Company with the SEC pursuant to Items 601(b)(4) and 601(b)(10) of Regulation S-K promulgated by the SEC.

“**Nasdaq**” means the Nasdaq Capital Market, the Nasdaq Global Market, or the Nasdaq Global Select Market.

“**Organizational Documents**” means (a) the Amended and Restated Certificate of Incorporation of the Company, as amended and restated from time to time and as in effect as of the date of this Agreement, and (b) the Amended and Restated Bylaws of the Company as in effect as of the date of this Agreement.

“**Permitted Transferee**” means an Affiliate of the Share Acquiror; provided, however, that no such Person shall be deemed a Permitted Transferee for any purpose under this Agreement unless: (a) the Permitted Transferee, prior to or simultaneously with any Disposition, shall have agreed in writing to be subject to and bound by all restrictions and obligations set forth in this Agreement as though it were the Share Acquiror hereunder, and (b) the Share Acquiror acknowledges that it continues to be bound by all restrictions and obligations set forth in this Agreement.

“**Person**” means any individual, partnership, limited liability company, firm, corporation, trust, unincorporated organization, government or any department or agency thereof or other entity.

“**Prospectus**” means the prospectus (including any preliminary, final or summary prospectus) included in any Registration Statement, all amendments and supplements to such prospectus and all other material incorporated by reference in such prospectus

“**Register**,” “**Registered**” and “**Registration**” means a registration effected by preparing and filing (a) a Registration Statement in compliance with the Securities Act (and any post-effective amendments filed or required to be filed) and the declaration or ordering of effectiveness of such Registration Statement, or (b) a Prospectus and/or Prospectus supplement in respect of an appropriate effective Registration Statement.

“**Registrable Securities**” means the Shares; provided, that any Shares will cease to be Registrable Securities when such Shares (A) have been sold or otherwise Disposed of pursuant to an effective Registration Statement or (B) may be sold under Rule 144 without regard to volume restrictions.

“**Registration Statement**” means a registration statement of the Company that covers the resale of any Registrable Securities pursuant to the provisions of Appendix 1 filed with, or to be filed with, the SEC under the rules and regulations promulgated under the Securities Act, including the related Prospectus, amendments and supplements to each such registration statement or Prospectus, including pre- and post-effective amendments, all exhibits thereto, financial information and all other material incorporated by reference or deemed to be incorporated by reference in such registration statement.

“**Rule 144**” means Rule 144 under the Securities Act.

“**Securities Act**” means the Securities Act of 1933, as amended.

“**Shelf Registration Statement**” means a “shelf” registration statement of the Company that covers all Registrable Securities on Form S-3 and under Rule 415 under the Securities Act or, if the Company is not then eligible to file on Form S-3, on another eligible form under the Securities Act, or any successor rule that may be adopted by the SEC, including without limitation any such registration statement filed pursuant to Appendix 1 and all amendments and supplements to such “shelf” registration statement, including, post-effective amendments, in each case, including the Prospectus contained therein, all exhibits thereto and any document incorporated by reference therein.

“**Subsidiary**” means any corporation, association trust, limited liability company, partnership, joint venture or other business association or entity (a) at least 50% of the outstanding voting securities of which are at the time owned or controlled directly or indirectly by the Company or (b) with respect to which the Company possesses, directly or indirectly, the power to direct or cause the direction of the affairs or management of such Person.

“**Tax**” or “**Taxes**” shall mean all federal, state, local, and foreign income, excise, gross receipts, gross income, ad valorem, profits, gains, property, capital, sales, transfer, use, payroll, employment, severance, withholding, duties, intangibles, franchise, backup withholding, value-added, and other taxes imposed by a Governmental Authority, together with all interest, penalties and additions to tax imposed with respect thereto.

“**Tax Return**” shall mean a report, return or other document (including any amendments thereto) required to be supplied to a Governmental Authority with respect to Taxes.

“**Third Party**” means any Person other than the Share Acquiror, the Company, or any Affiliate of the Share Acquiror or the Company.

“**Trading Market**” means the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange or the NYSE MKT.

“**Transactions**” means the issuance of the Shares by the Company, and the acquisition of the Shares by the Share Acquiror, in accordance with the terms hereof, and any other transactions contemplated by this Agreement.

“**Transaction Agreements**” means this Agreement and the License Agreement.

“**Underwriter**” means, with respect any Underwritten Offering, a securities dealer who purchases any Registrable Securities as a principal in connection with a distribution of such Registrable Securities.

“**Underwritten Offering**” means a public offering of securities Registered under the Securities Act in which an Underwriter participates in the distribution of such securities, including on a firm commitment basis for reoffer and resale to the public, including any such offering that is a “bought deal” or a block trade.

1.2 Additional Defined Terms. In addition to the terms defined in Section 1.1, the following terms shall have the respective meanings assigned thereto in the sections indicated below:

<u>Defined Term</u>	<u>Section</u>
Board	<u>Section 4.4(c)</u>
Code	<u>Section 4.16(b)</u>
Closing	<u>Section 3.1</u>
Closing Date	<u>Section 3.1</u>
Common Stock	<u>Recitals</u>
Company	<u>Preamble</u>
Company SEC Reports	<u>Section 4.9(a)</u>
Enforceability Exceptions	<u>Section 4.4(b)</u>
FCPA	<u>Section 4.20</u>
FDA	<u>Section 4.24</u>
Financial Statements	<u>Section 4.9(b)</u>
GAAP	<u>Section 4.9(b)</u>
License Agreement	<u>Recitals</u>
Lockup Period	<u>Section 6.3</u>
Lockup Shares	<u>Section 6.3</u>
Money Laundering Laws	<u>Section 4.21</u>

<u>Defined Term</u>	<u>Section</u>
OFAC	<u>Section 4.22</u>
Preferred Stock	<u>Section 4.2(a)</u>
Purchase Price	<u>Recitals</u>
Regulatory Authorities	<u>Section 4.23</u>
Regulatory Permits	<u>Section 4.24</u>
Required Approvals	<u>Section 4.6</u>
SEC	<u>Section 4.6</u>
Share Acquiror	<u>Preamble</u>
Shares	<u>Recitals</u>
Studies	<u>Section 4.23</u>
Third Party Tender/Exchange Offer	<u>Section 6.3</u>

2. Purchase and Sale of Common Stock. Subject to the terms and conditions of this Agreement, at the Closing, the Company shall issue and sell to the Share Acquiror and the Share Acquiror shall acquire from the Company the Shares for the Purchase Price, which shall be paid in cash; provided, however, that in the event of any stock dividend, stock split, combination of shares or recapitalization with respect to Common Stock after the date of this Agreement and on or prior to the Closing Date, the number of Shares shall be adjusted proportionately.

3. Closing Date; Deliveries.

3.1 Closing Date. The closing of the acquisition and issuance of the Shares hereunder (the "Closing") shall be held by electronic exchange of signature pages and Shares at 10:00 am (New York City time), on such date as is agreed to by the Company and the Share Acquiror, which date shall be no later than the fifth (5th) Business Day after the satisfaction or waiver of the conditions to the Closing set forth in Sections 7 and 8 (other than those conditions that by their nature are to be satisfied at the Closing, but subject to the satisfaction or waiver of such conditions at the Closing), or at such other time and date as the parties may mutually agree in writing. The date the Closing occurs is hereinafter referred to as the "Closing Date."

3.2 Deliveries. At the Closing, (a) the Company shall deliver or cause to be delivered to the Share Acquiror (i) the Shares in book-entry form; and (ii) evidence reasonably satisfactory to the Share Acquiror that the Shares have been issued to the Share Acquiror pursuant to a private placement exempt from registration under the Securities Act; and (b) the Share Acquiror shall deliver to the Company the Purchase Price by wire transfer of immediately available funds to an account designated by the Company in writing to the Share Acquiror not less than three (3) Business Days prior to the Closing Date.

4. Representations and Warranties of the Company. The Company hereby represents and warrants to the Share Acquiror as of the date hereof and as of the Closing Date as follows:

4.1 Organization. The Company is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware. The Company has all requisite corporate power and authority to enter into this Agreement, to issue the Shares and to perform its obligations under and to carry out the Transactions contemplated by this Agreement.

The Company is duly qualified as a foreign corporation to transact business and is in good standing in each jurisdiction in which such qualification is required, whether by reason of the ownership or leasing of property or the conduct of business, except whether the failure to so qualify or be in good standing would not, individually or in the aggregate, constitute a Material Adverse Effect. The Company is not in violation of, in conflict with, or in default under its Organizational Documents in any material respect. True and correct copies of the Organizational Documents, as in effect on the date of this Agreement, are each filed or incorporated by reference as exhibits to the Company SEC Reports.

4.2 Capitalization.

(a) As of September 30, 2018, the authorized capital stock of the Company consists of (i) 150,000,000 shares of Common Stock and (ii) 5,000,000 shares of preferred stock, par value \$0.0001 per share (“**Preferred Stock**”). As of September 30, 2018, (A) 61,889,206 shares of Common Stock are issued and outstanding; (B) no shares of Common Stock are held in the treasury of the Company; (C) no shares of Preferred Stock are issued or outstanding; (D) an aggregate of 3,179,425 shares of Common Stock are reserved for future issuance under the Company’s 2014 Performance Incentive Plan, 2014 ESPP and 2016 Inducement Plan; (E) 7,573,698 shares of Common Stock are subject to outstanding options to acquire shares of Common Stock; (F) no shares of unvested restricted Common Stock are outstanding; and (G) 2,198 shares of Common Stock underlie outstanding warrants to purchase shares of Common Stock. Except as set forth in a written notice provided by the Company to the Share Acquiror prior to the execution of this Agreement and referencing this Section 4.2, as of the date of this Agreement, the Company has no other shares of capital stock or securities convertible into capital stock of the Company, authorized, issued or outstanding.

(b) All of the issued and outstanding shares of capital stock of the Company are duly authorized, validly issued, fully paid and non-assessable and have been issued in compliance with all federal and state securities Laws.

(c) Except as set forth in the Company SEC Reports and pursuant to this Agreement, no Person is entitled to preemptive rights with respect to any securities of the Company.

(d) The Company has no obligation (contingent or otherwise) to purchase, redeem or otherwise acquire any of its equity securities or any interests therein or to pay any dividend or make any distribution in respect thereof.

(e) Except as set forth in the Company SEC Reports and as may be provided in this Agreement, there are no voting agreements, buy-sell agreements or right of first purchase agreements among the Company and any of the stockholders of the Company relating to the securities of the Company held by them.

(f) The issuance and sale of the Shares hereunder will not obligate the Company to issue shares of Common Stock or other securities to any other Person (other than the Share Acquiror).

(g) The Company does not have outstanding any stockholder rights plans or “poison pill” or any similar arrangement in effect giving any Person the right to purchase any equity interest in the Company upon the occurrence of certain events.

4.3 Subsidiaries. The Company has provided to the Share Acquiror a complete list of each direct and indirect Subsidiary of the Company, including its name and jurisdiction of incorporation or formation. Each Subsidiary has been duly incorporated or organized, as the case may be, and is validly existing as a corporation, partnership or limited liability company, as applicable, in good standing under the laws of the jurisdiction of its incorporation or organization and has the power and authority (corporate or other) to own, lease and operate its properties and to conduct its business as presently conducted. Each Subsidiary is duly qualified as a foreign corporation, partnership or limited liability company, as applicable, to transact business and is in good standing in each jurisdiction in which such qualification is required, whether by reason of the ownership or leasing of property or the conduct of business, except where the failure to so qualify or be in good standing would not, individually or in the aggregate, constitute a Material Adverse Effect. All of the issued and outstanding capital stock or ownership interests of each Subsidiary have been duly authorized and validly issued, are fully paid and nonassessable and are owned by the Company, directly or through subsidiaries, free and clear of any encumbrances or preemptive and similar rights to subscribe for or purchase securities.

4.4 Authorization.

(a) All requisite corporate action on the part of the Company required by applicable Law for the authorization, execution and delivery by the Company of this Agreement and the performance of all obligations of the Company hereunder and thereunder, including the authorization, issuance and delivery of the Shares, has been taken.

(b) This Agreement has been duly executed and delivered by the Company, and upon the due execution and delivery of this Agreement by the Share Acquiror, it will constitute valid and legally binding obligations of the Company, enforceable against the Company in accordance with its terms, except as limited by: (i) applicable bankruptcy, insolvency, reorganization, moratorium, fraudulent conveyance and other Laws of general application relating to or affecting enforcement of creditors’ rights generally; and (ii) as limited by Laws relating to the availability of specific performance, injunctive relief or other equitable remedies (the exceptions set forth in (i) and (ii), the “**Enforceability Exceptions**”).

(c) On or prior to the date hereof, the Board of Directors of the Company (the “**Board**”) has duly adopted resolutions, among other things, authorizing and approving each of the Transaction Agreements and the Transactions.

4.5 No Conflicts. Except as set forth in a written notice provided by the Company to the Share Acquiror prior to the execution of this Agreement and referencing this Section 4.5, the execution, delivery and performance of this Agreement, and compliance with the provisions hereof, and the issuance of the Shares by the Company do not and shall not: (a) subject to receipt of the Required Approvals, violate any provision of applicable Law or any ruling, writ, injunction, order, permit, judgment or decree of any Governmental Authority to which the Company is subject, (b) result in any encumbrance upon any of the Shares, other than restrictions

on resale pursuant to securities laws or as set forth in this Agreement, (c) result in a default, modification, acceleration of payment or termination under, give any Person a right of termination or cancellation under, result in the loss of a benefit or imposition of any obligation under, any Material Contract, or (d) violate or conflict with any of the provisions of the Organizational Documents, except, in the case of subsections (a) and (c) as would not, individually or in the aggregate, constitute a Material Adverse Effect.

4.6 No Approval. No consent, approval, authorization or other order of, or filing with, or notice to, any Governmental Authority is required to be obtained or made by the Company or any of its Subsidiaries in connection with the authorization, execution and delivery by the Company of this Agreement or with the authorization, issuance and sale by the Company of the Shares, or the consummation of the Transactions, except (a) such filings as may be required to be made with the Securities and Exchange Commission (the “**SEC**”) and with any state blue sky or securities regulatory authority, which filings shall be made in a timely manner in accordance with all applicable Laws; (b) as required pursuant to the HSR Act; and (c) those that have been made or obtained prior to the date of this Agreement (the items referred to in clauses (a) and (c), the “**Required Approvals**”).

4.7 Valid Issuance of Shares. When issued, sold and delivered at the Closing in accordance with the terms hereof, the Shares will be duly authorized, validly issued, fully paid and nonassessable, free from any liens, encumbrances or restrictions on transfer, including preemptive rights, rights of first refusal, purchase option, call option, subscription right or other similar rights, other than as arising pursuant to this Agreement, as a result of any action by the Share Acquiror or under federal or state securities Laws. Assuming the accuracy of the representations and warranties of the Share Acquiror in this Agreement and subject to the Required Approvals, the Shares will be issued in compliance with all applicable federal and state securities Laws. No stop order or suspension of trading of Common Stock has been imposed by Nasdaq or the SEC and remains in effect.

4.8 NASDAQ Listing. The Common Stock is listed on Nasdaq and registered pursuant to Section 12(b) of the Exchange Act, and the Company has taken no action (a) designed to terminate or reasonably likely to cause the termination of the registration of the Common Stock under the Exchange Act and the Company has not received any written notification that the SEC is contemplating terminating such registration or (b) designed to delist or reasonably likely to cause the delisting of the Common Stock from Nasdaq. There are no proceedings pending or, to the knowledge of the Company, threatened to revoke or suspend the Company’s listing on Nasdaq or the listing of the Shares. The Company is in compliance in all material respects with the requirements of Nasdaq for continued listing of Common Stock thereon.

4.9 Company SEC Reports.

(a) The Company has timely filed or furnished, as applicable, all reports, schedules, forms, statements and other documents required to be filed or furnished by it with the SEC since January 1, 2018, pursuant to the reporting requirements of the Exchange Act (all of the foregoing filed prior to the date of this Agreement and all exhibits included therein and financial statements and schedules thereto and documents (other than exhibits) incorporated by reference therein, collectively, the “**Company SEC Reports**”), each of which complied at the time

of filing in all material respects with all applicable requirements of the Securities Act and the Exchange Act, as applicable, in each case as in effect on the dates such forms reports and documents were filed. As of its respective date, and if amended, as of the date of the last such amendment, no Company SEC Report, since January 1, 2018, when filed, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. All Material Contracts to which the Company or any Subsidiary is a party, or to which the property or assets of the Company or any Subsidiary are subject, that are required to be included as part of or specifically identified in the Company SEC Reports, are so included or specifically identified. True and complete copies of the Company SEC Reports are available for public access via the SEC's EDGAR system.

(b) As of their respective dates, the consolidated financial statements included or incorporated in the Company SEC Reports (the "**Financial Statements**"), and the related notes, complied as to form in all material respects with applicable accounting requirements and the published rules and regulations of the SEC with respect thereto. The Financial Statements and the related notes have been prepared in accordance with accounting principles generally accepted in the United States ("**GAAP**"), consistently applied, during the periods involved (except (i) as may be otherwise indicated in the Financial Statements or the notes thereto, or (ii) in the case of unaudited interim statements, to the extent they may not include footnotes, may be condensed or summary statements or may conform to the SEC's rules and instructions for Quarterly Reports on Form 10-Q) and fairly present in all material respects the consolidated financial position and the results of the operations of the Company and its Subsidiaries, retained earnings (loss), and cash flows, as the case may be, for the periods then ended (subject, in the case of unaudited statements, to normal and recurring year-end audit adjustments).

(c) The Company has established and maintains disclosure controls and procedures (as defined in Rules 13a-15 and 15d-15 under the Exchange Act) that (i) are designed to ensure that material information relating to the Company, including each consolidated Subsidiary, is made known to the Company's principal executive officer and its principal financial officer by others within those entities, particularly during the periods in which the periodic reports required under the Exchange Act are being prepared; (ii) have been evaluated by management of the Company for effectiveness as of the end of the Company's most recent fiscal quarter; and (iii) are effective in all material respects to perform the functions for which they were established. Since the end of the Company's most recent audited fiscal year, there have been no significant deficiencies or material weaknesses in the Company's internal control over financial reporting (whether or not remediated) and 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.

4.10 No Undisclosed Material Liabilities. The Company does not have any liabilities or obligations of any nature (whether accrued, absolute, contingent or otherwise) required to be reflected or reserved against on a consolidated balance sheet of the Company prepared in accordance with GAAP or the notes thereto, except for liabilities or obligations (a) reflected or reserved against on the most recent consolidated balance sheet of the Company included in the Company SEC Reports or the notes thereto, or (b) incurred since the date of such balance sheet in the ordinary course of business.

4.11 Material Contracts. Except as set forth in a written notice provided by the Company to the Share Acquiror prior to the execution of this Agreement and referencing this Section 4.11, each Material Contract of the Company is in the Company SEC Reports. Each Material Contract is the legal, valid and binding obligations of the Company, enforceable against the Company in accordance with their respective terms, and, to the knowledge of the Company, are valid and binding obligations of the other party thereto, enforceable against each other party thereto in accordance with its terms, except as limited by the Enforceability Exceptions. There has not occurred any breach, violation or default or any event that, with the lapse of time, the giving of notice or the election of any Person, or any combination thereof, would constitute a breach, violation or default by the Company under any such Material Contract or, to the knowledge of the Company, by any other Person to any such Material Contract. The Company has not been notified that any Third Party to any Material Contract intends to cancel, terminate, not renew or exercise an option under any Material Contract, whether in connection with the Transactions or otherwise.

4.12 Voting Rights. Other than as provided by this Agreement or any Contract or other document listed as an exhibit to a Company SEC Report, there are no provisions in the Organizational Documents or any Contract to which the Company or any Subsidiary is a party that (a) may affect or restrict the voting rights of the Share Acquiror with respect to the Shares in its capacity as a stockholder of the Company, (b) may adversely affect the Company's or the Share Acquiror's right or ability to consummate the Transactions or comply with the terms of this Agreement, (c) require the vote of more than a majority of the Company's issued and outstanding Common Stock to take or prevent any corporate action, other than those matters requiring a different vote under Delaware law or (d) entitle any party to nominate or elect any director of the Company or require any of the Company's stockholders to vote for any such nominee or other Person as a director of the Company.

4.13 No Integrated Offering. Neither the Company, nor any of its Affiliates or any other Person acting on the Company's behalf, has directly or indirectly engaged in any form of general solicitation or general advertising with respect to the Shares nor have any of such Persons made any offers or sales of any security of the Company or its Affiliates or solicited any offers to buy any security of the Company or its Affiliates under circumstances that would require registration of the Shares under the Securities Act or cause this offering of Shares to be integrated with any prior offering of securities of the Company for purposes of the Securities Act or any applicable shareholder approval provisions of any Trading Market on which any of the securities of the Company are listed or designated, nor will the Company take any action or steps that would cause the offering or issuance of the Shares to be integrated with other offerings.

4.14 Offering: Exemption. Assuming the accuracy of the Share Acquiror's representations and warranties set forth in Section 5, no registration under the Securities Act or any applicable state securities law is required for the offer and sale of the Shares by the Company to the Share Acquiror as contemplated hereby.

4.15 Legal Proceedings and Liabilities. Neither the Company nor any of its Subsidiaries is a party to any, and there are no pending, or to the knowledge of the Company, threatened, material legal, administrative, arbitral or other proceedings, claims, actions or governmental investigations of any nature against the Company or any of its Subsidiaries. Neither

the Company nor any of its Subsidiaries is subject to any order, judgment or decree of a Governmental Authority. To the knowledge of the Company, there is no material investigation pending or threatened by any Governmental Authority with respect to the Company or any of its Subsidiaries.

4.16 Taxes and Tax Returns.

(a) The Company and each of its Subsidiaries has timely filed (taking into account all applicable extensions) all Tax Returns with respect to income taxes and all other material Tax Returns required to be filed by it, and all such Tax Returns were correct and complete in all material respects, and the Company and each of its Subsidiaries has paid (or has had paid on its behalf) to the appropriate Governmental Authority all material Taxes that are required to be paid by it, except, in each case, with respect to matters contested in good faith and for which adequate reserves have been established in accordance with GAAP. There are no disputes pending, or claims asserted in writing, in respect of Taxes of the Company or any of its Subsidiaries for which reserves that are adequate under GAAP have not been established.

(b) The Company has not been a United States real property holding company within the meaning of Section 897(c)(2) of the Internal Revenue Code of 1986, as amended (the "Code") during the period specified in Section 897(c)(1)(A)(ii) of the Code.

4.17 Intellectual Property Matters. The representations of the company contained in Section 16 of the License Agreement are, subject to the exceptions and qualifications contained therein and disclosures related thereto, true, correct and complete.

4.18 Absence of Changes. Since December 31, 2017, except as set forth in subsequent Company SEC Reports, there has not been:

(a) any declaration, setting aside or payment of any dividend or other distribution with respect to any shares of capital stock of the Company or any repurchase, redemption or other acquisition by the Company of any outstanding shares of its capital stock;

(b) any material Tax election made or changed, any audit settled or any amended Tax Returns filed;

(c) any damage, destruction or loss (whether or not covered by insurance) that has had or would reasonably be expected to have a Material Adverse Effect;

(d) any sale, assignment or transfer, or any Contract to sell, assign or transfer, any material asset, liability, property, obligation or right of the Company or any Subsidiary to any Person, including, without limitation, the Share Acquiror and its Affiliates, in each case, other than in the ordinary course of business;

(e) any material obligation or liability incurred, or any material loans or advances made, by the Company or any Subsidiary to any of its or their Affiliates, other than expenses allowable in the ordinary course of business of the Company;

(f) any purchase or acquisition of, or Contract, plan or arrangement to purchase or acquire, any material property, rights or assets other than in the ordinary course of business of the Company;

(g) any material waiver of any material rights or claims of the Company or any Subsidiary;

(h) any material lien upon, or adversely affecting, any material property or other material assets of the Company or any Subsidiary;

(i) any Contract or commitment by the Company or any Subsidiary to do any of the foregoing; or

(j) any other change, development, occurrence or event that has had or would reasonably be expected to have a Material Adverse Effect.

4.19 Compliance with Laws. Since January 1, 2017, except as set forth in subsequent Company SEC Reports, (a) the Company and its Subsidiaries have complied in all material respects with all applicable Laws and (b) to the knowledge of the Company, neither the Company nor any of its Subsidiaries has been investigated with respect to, or has been threatened in writing to be charged with, or given notice of any violation in any material respect of, any applicable Law.

4.20 Foreign Corrupt Practices Act. Neither the Company nor any of its Subsidiaries nor, to the knowledge of the Company, any director, officer, agent, employee or other Person acting on behalf of the Company or any of its Subsidiaries has, in the course of its actions for, or on behalf of, the Company or any of its Subsidiaries (a) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expenses relating to political activity; (b) made any direct or indirect unlawful payment to any domestic government official, "foreign official" (as defined in the U.S. Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (collectively, the "**FCPA**")) or employee from corporate funds; (c) violated or is in violation of any provision of the FCPA or, to the knowledge of the Company, any applicable non-U.S. anti-bribery statute or regulation; or (d) made any unlawful bribe, rebate, payoff, influence payment, kickback or other unlawful payment to any domestic government official, such foreign official or employee. The Company and its Subsidiaries have conducted their respective businesses in compliance with the FCPA and have instituted and maintain policies and procedures designed to ensure, and that are reasonably expected to continue to ensure, continued compliance therewith.

4.21 Money Laundering Laws. The operations of the Company and its Subsidiaries are, and have been conducted at all times, in compliance with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, and to the knowledge of the Company, the money laundering statutes of all applicable jurisdictions, the rules and regulations thereunder and any related or similar applicable rules, regulations or guidelines, issued, administered or enforced by any Governmental Authority (collectively, the "**Money Laundering Laws**").

4.22 OFAC. Neither the Company nor any of its Subsidiaries nor, to the knowledge of the Company, any director, officer, agent, employee or Person acting on behalf of the Company or any of its Subsidiaries is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department (“OFAC”); and the Company will not directly or indirectly use the proceeds from the sale of the Shares, or lend, contribute or otherwise make available such proceeds to any Subsidiary or any joint venture partner or other Person, for the purpose of financing the activities of or business with any Person, or in any country or territory, that currently is subject to any U.S. sanctions administered by OFAC or 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 U.S. sanctions administered by OFAC.

4.23 Preclinical and Clinical Data and Regulatory Compliance. The preclinical tests and clinical trials (collectively, “Studies”) that are described in, or the results of which are referred to in, the Company SEC Reports were and, if still pending, are being conducted in all material respects in accordance with the protocols, procedures and controls designed and approved for such Studies. Except as set forth in the Company SEC Reports, neither the Company nor any Subsidiary has received any written notice of, or correspondence from, any Regulatory Authority or institutional review board requiring the termination, suspension or material modification of any Studies that are described or referred to in the Company SEC Reports and the Company and each Subsidiary have operated and currently are in compliance in all material respects with applicable Laws, rules, regulations and policies of the federal, state, local or foreign agencies or bodies engaged in the regulation of pharmaceuticals and biological products such as those being developed by the Company (collectively, “Regulatory Authorities”), including current Good Laboratory Practices and current Good Clinical Practices.

4.24 Regulatory Permits. Except as set forth in the Company SEC Reports, (a) the Company and each Subsidiary have such material permits, licenses, certificates, approvals, clearances, authorizations or amendments thereto (the “Regulatory Permits”) issued by the appropriate federal, state, local or foreign regulatory agencies or bodies necessary to conduct the business of the Company as currently conducted and as described in the Company SEC Reports, including, without limitation, any Investigational New Drug Application as required by the United States Food and Drug Administration (“FDA”) or authorizations issued by Regulatory Authorities; (b) the Company and each Subsidiary are in compliance in all material respects with the requirements of the Regulatory Permits, and all of the Regulatory Permits are valid and in full force and effect, in each case in all material respects; (c) the Company has not received any notice of proceedings relating to the revocation, termination, modification or impairment of any of the Regulatory Permits; (d) neither the Company nor any Subsidiary has failed to file with the FDA or any other Regulatory Authority any material required application, submission, report, document, notice, supplement or amendment, and all such filings were in material compliance with applicable Laws when filed and have been supplemented as necessary to remain in material compliance with applicable Laws and no material deficiencies have been asserted by the FDA or any other Regulatory Authority with respect to any such filings.

4.25 Related-Party Transactions. Except as set forth in the Company SEC Reports, there are no business relationships or related-party transactions involving the Company or any Subsidiary or any other Person of the type required to be disclosed in the Company SEC Reports pursuant to Item 404 of Regulation S-K promulgated by the SEC.

4.26 Brokers' or Finders' Fees. No broker, finder, investment banker or other Person is entitled to any brokerage, finder's or other fee or commission from the Company in connection with the Transactions.

4.27 Not Investment Company. The Company is not, and immediately after the consummation of the Transactions, will not be, an "investment company" as defined in the Investment Company Act of 1940, as amended.

4.28 No Registration Rights. Except as set forth in a written notice provided by the Company to the Share Acquiror prior to the execution of this Agreement and referencing this Section 4.28, (a) no Person has the right to (i) prohibit the Company from filing a Registration Statement or (ii) require the Company to register any securities for sale under the Securities Act by reason of the filing of a Registration Statement, except in the case of clause (ii) for rights which have been properly satisfied or waived; and (b) the granting and performance of the registration rights under this Agreement will not violate or conflict with, or result in a breach of any provision of, or constitute a default under, any Contract to which the Company is a party.

4.29 Certain Employee Matters. No officer or employee of the Company, to the knowledge of the Company, is, or is now expected to be, in material violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement or non-competition agreement, or any other Contract or any restrictive covenant, and, to the knowledge of the Company, the continued employment of each such officer or employee does not subject the Company or any Subsidiary to any material liability with respect to any of the foregoing matters.

5. Representations and Warranties of the Share Acquiror. The Share Acquiror hereby represents and warrants to the Company as of the date hereof and as of the Closing Date as follows:

5.1 Organization. The Share Acquiror is a corporation duly organized, validly existing and in good standing under the laws of Indiana. The Share Acquiror has all requisite power and authority to enter into this Agreement, to purchase the Shares and to perform its obligations under and to carry out the Transactions.

5.2 Authorization. All requisite corporate action on the part of the Share Acquiror, required by applicable Law for the authorization, execution and delivery by the Share Acquiror of this Agreement and the performance of all of its obligations hereunder, including the acquisition of the Shares, has been taken. This Agreement has been duly executed and delivered by the Share Acquiror, and upon the due execution and delivery thereof by the Company, will constitute valid and legally binding obligations of the Share Acquiror, enforceable against the Share Acquiror in accordance with its terms, except as limited by the Enforceability Exceptions.

5.3 No Conflicts. The execution, delivery and performance of this Agreement and compliance with the provisions thereof, by the Share Acquiror do not and shall not: (a) violate any provision of applicable Law or any ruling, writ, injunction, order, permit, judgment or decree of any Governmental Authority, or (b) violate or conflict with any of the provisions of the Share

Acquiror's organizational documents (including any articles or memoranda of organization or association, charter, by-laws or similar documents), except as would not materially impair or affect in a material adverse manner the ability of the Share Acquiror to consummate the Transactions and perform its obligations under this Agreement.

5.4 No Approval. No consent, approval, authorization or other order of any Governmental Authority is required to be obtained by the Share Acquiror in connection with the authorization, execution and delivery of any of this Agreement or with the subscription for and purchase of the Shares, except as required pursuant to the HSR Act.

5.5 Acquisition Entirely for Own Account. The Shares shall be acquired for investment for the Share Acquiror's own account, not as a nominee or agent, and not with a view to the resale or distribution of any part thereof, and the Share Acquiror has no present intention of selling, granting any participation or otherwise distributing the Shares. The Share Acquiror does not have and will not have as of the Closing any Contract, undertaking or arrangement with any Person to sell, transfer or grant participation to a Person any of the Shares.

5.6 Investment Experience and Accredited Investor Status. The Share Acquiror is an "accredited investor" (as defined in Regulation D under the Securities Act). The Share Acquiror has conducted its own due diligence on the Company to its satisfaction and has such knowledge and experience in financial or business matters that it is capable of evaluating the merits and risks of the investment in the Shares to be purchased hereunder.

5.7 Restricted Securities. The Share Acquiror understands that the Shares, when issued, will be "restricted securities" under the federal securities Laws inasmuch as they are being acquired from the Company in a transaction not involving a public offering and that under such Laws the Shares may be resold without registration under the Securities Act only in certain limited circumstances. The Share Acquiror represents that it is familiar with Rule 144.

5.8 Legends. In addition to any other legend required by Law, the book-entry or certificated form of the Shares shall bear any legend required by the "blue sky" laws of any state and a restrictive legend in substantially the following form:

THESE SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED. THEY MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF A REGISTRATION STATEMENT IN EFFECT WITH RESPECT TO THE SECURITIES UNDER SUCH ACT OR AN OPINION OF COUNSEL SATISFACTORY TO THE ISSUER THAT SUCH REGISTRATION IS NOT REQUIRED OR UNLESS SOLD PURSUANT TO RULE 144 OF SUCH ACT.

5.9 Acquiring Person. As of the date of this Agreement and immediately prior to the Closing, neither the Share Acquiror nor any of its controlled Affiliates (excluding directors and officers of the Share Acquiror who may hold securities of the Company for their personal account) Beneficially Owns, or will Beneficially Own any securities of the Company.

5.10 United States Person. The Share Acquiror is a United States person (as defined by Section 7701(a)(30) of the Code).

5.11 No General Solicitation. The Share Acquiror is not acquiring the Shares as a result of (a) any advertisement, article, notice or other communication published in any newspaper, magazine or similar media or broadcast over television, radio or the Internet, in each case, relating to the Company, or (ii) any seminar or meeting whose attendees, including the Share Acquiror, have been invited by any general solicitation or general advertising related to the Company.

6. Covenants.

6.1 Reasonable Best Efforts. Subject to the terms and conditions set forth in this Agreement, each party hereto shall use its reasonable best efforts to do or cause to be done all things necessary or appropriate to satisfy the conditions to the Closing and to consummate the Transactions as promptly as practicable. Without limiting the generality of the foregoing, unless the License Agreement is earlier terminated by either party in accordance with its terms, the Company and the Share Acquiror shall use their respective reasonable best efforts to cause the Closing to occur. Each of the Company and the Share Acquiror shall not, and shall not permit any of their respective Affiliates to, take any action that would, or that would reasonably be expected to, result in any of the conditions set forth in Section 7 or Section 8 not being satisfied.

6.2 Notification under the HSR Act. The parties shall make, or cause to be made, the filings required of them under the HSR Act in connection with the Transactions and shall take related actions as provided in the License Agreement.

6.3 Lock-Up. During the period commencing on the Closing Date and until the date that is nine (9) months after the Closing Date (the "Lockup Period"), without the prior approval of the Company, the Share Acquiror shall not Dispose of (x) any of the Shares, together with any shares of Common Stock issued in respect thereof as a result of any stock split, stock dividend, share exchange, merger, consolidation or similar recapitalization, and (y) any Common Stock issued as (or issuable upon the exercise of any warrant, right or other security that is issued as) a dividend or other distribution with respect to, or in exchange or in replacement of, the shares of Common Stock described in clause (x) of this sentence (collectively, "Lockup Shares"); provided, however, that the foregoing shall not prohibit (a) the Share Acquiror from transferring any Lockup Shares to (i) a Permitted Transferee (provided, that the Permitted Transferee agrees to be bound in writing by the restrictions set forth herein), or (ii) to the Company; (b) the Disposition of Lockup Shares with the prior written consent of the Company; and (c) the Disposition of Lockup Shares pursuant to a Third Party Tender/Exchange Offer, as defined below, and any Disposition effected pursuant to any merger, consolidation or similar transaction consummated by the Company. "Third Party Tender/Exchange Offer" means any tender or exchange offer made to all of the holders of shares of Common Stock by a Third Party (other than a Third Party acting on behalf of or as part of a group or in concert with the Share Acquiror) solely to the extent that the Board has recommended such tender or exchange offer in a Schedule 14D-9 under the Exchange Act. For the avoidance of doubt, nothing in this Section 6.3 will restrict any Disposition of shares of Common Stock held by an executive officer or director of the Share Acquiror for his or her personal account.

6.4 Registration Rights. In the event the Shares as of the Closing Date equal or exceed 10% of the Company's outstanding Common Stock, the Company hereby provides the Share Acquiror with the registration rights set forth on Appendix 1 attached hereto, which is hereby incorporated in and made a part of this Agreement as if set forth in full herein.

6.5 Participation Rights. If the Share Acquiror agrees to enter into a customary confidentiality agreement with the Company, for so long as the Share Acquiror holds one hundred percent (100%) of the Shares and such Shares equal or exceed at least five percent (5%) of the Company's outstanding shares of Common Stock, the Company will use its commercially reasonable efforts to allow the Share Acquiror to participate (pro rata with its percentage ownership of the outstanding Common Stock) in public offerings and private placements of its Common Stock to financial, non-strategic institutional investors primarily for capital raising purposes, subject to any limitations (a) imposed by the Company's underwriters or investment bankers or (b) arising under securities or other applicable Laws; provided, that in no event will this Section 6.5 be deemed to provide the Share Acquiror with any rights (i) to membership on, or observation of, the Board or any other special information rights or (ii) with respect to "at the market" or "ATM" offerings.

6.6 Facilitation of Sales Pursuant to Rule 144. For as long as the Share Acquiror or its Affiliates Beneficially Owns any Shares, to the extent it shall be required to do so under the Exchange Act, the Company shall use reasonable efforts to timely file the reports required to be filed by it under the Exchange Act or the Securities Act (including the reports under Sections 13 and 15(d) of the Exchange Act referred to in subparagraph (c)(1) of Rule 144), and shall use reasonable efforts to take such further necessary action as the Share Acquiror may reasonably request in connection with the removal of any restrictive legend on the Shares being sold, all to the extent required from time to time to enable such holder to sell the Shares without registration under the Securities Act within the limitations of the exemption provided by Rule 144. Notwithstanding the foregoing, the Company shall not have any obligations pursuant to this Section 6.7 during any time when a Registration Statement covering the Shares is effective.

6.7 Press Release. The parties have mutually approved a press release with respect to this Agreement and either party may make subsequent public disclosure of the content of such press release. Subject to the foregoing, each party agrees not to issue any press release or other public statement, whether oral or written, disclosing the terms hereof without the prior written consent of the other party; provided, however, that neither party will be prevented from complying with any duty of disclosure it may have pursuant to applicable Laws or pursuant to the rules of any recognized stock exchange or quotation system.

7. Conditions to the Company's Obligations. The obligations of the Company under Section 2 hereof are subject to the fulfillment prior to or on the Closing Date of all of the following conditions, any of which may be waived in whole or in part by the Company.

7.1 Representations and Warranties. The representations and warranties of the Share Acquiror contained in this Agreement and in any certificate, if any, or other writing, if any, delivered by the Share Acquiror pursuant hereto shall be true and correct in all material respects on and as of the Closing Date, except those representations and warranties qualified by materiality or Material Adverse Effect, which representations and warranties shall be true and correct in all

respects, with the same effect as though such representations and warranties had been made on and as of the Closing Date (except to the extent expressly made as of an earlier date, in which case as of such earlier date).

7.2 Performance. The Share Acquiror shall have performed and complied in all material respects with all agreements, obligations and conditions contained in this Agreement that are required to be performed or complied with it on or before the Closing.

7.3 HSR Act Qualification. The filings required under the HSR Act in connection with this Agreement shall have been made and the required waiting period shall have expired or been terminated as of the Closing Date.

7.4 License Agreement. Each of the Company and the Share Acquiror shall have executed and delivered the License Agreement, and the License Agreement shall not have been terminated and shall be effective in accordance with its terms.

8. Conditions to the Share Acquiror's Obligations. The obligations of the Share Acquiror under Section 2 hereof are subject to the fulfillment prior to or on the Closing Date of all of the following conditions, any of which may be waived in whole or in part by the Share Acquiror.

8.1 Representations and Warranties. The representations and warranties of the Company contained in this Agreement and in any certificate, if any, or other writing, if any, delivered by the Company pursuant hereto shall be true and correct in all material respects on and as of the Closing Date, except those representations and warranties qualified by materiality or Material Adverse Effect, which representations and warranties shall be true and correct in all respects, with the same effect as though such representations and warranties had been made on and as of the Closing Date (except to the extent expressly made as of an earlier date, in which case as of such earlier date).

8.2 Performance. The Company shall have performed and complied in all material respects with all agreements, obligations and conditions contained in this Agreement that are required to be performed or complied with it on or before the Closing.

8.3 HSR Act Qualification. The filings required under the HSR Act in connection with this Agreement shall have been made and the required waiting period shall have expired or been terminated as of the Closing Date.

8.4 License Agreement. Each of the Company and the Share Acquiror shall have executed and delivered the License Agreement, and the License Agreement shall not have been terminated and shall be effective in accordance with its terms.

8.5 No Stockholder Approval Required. No approval on the part of the stockholders of the Company shall be required in connection with the execution and delivery by the Company of this Agreement and the consummation of the Transactions.

8.6 Qualification Under State Securities Laws. All registrations, qualifications, permits and approvals, if any, required to be obtained prior to the Closing under applicable state securities laws shall have been obtained for the lawful execution, delivery and performance of this Agreement or the other Transaction Agreements, including, without limitation, the offer and sale of the Shares.

8.7 Nasdaq Matters.

(a) Prior to the Closing, the Company shall have taken all actions which are necessary, including providing appropriate notice to Nasdaq of the Transactions, for the Shares purchased at the Closing to remain listed on Nasdaq and shall have complied with all listing, reporting, filing and other obligations under the rules of Nasdaq and of the SEC.

(b) The Common Stock shall not have been suspended, as of the Closing Date, by the SEC or Nasdaq from trading on Nasdaq nor shall suspension by the SEC or Nasdaq have been threatened, as of the Closing Date, in writing by the SEC or Nasdaq.

8.8 Absence of Litigation. No proceeding challenging the Transaction Agreements or the Transactions, or seeking to prohibit, alter, prevent or materially delay the Closing, shall have been instituted by any Governmental Authority.

9. Termination. This Agreement may only be terminated and shall automatically terminate if the License Agreement has been terminated prior to the Closing Date in accordance with its terms. In the event of the termination of this Agreement pursuant to this Section 9, (a) this Agreement (except for this Section 9) shall forthwith become void and have no effect, without any liability on the part of any party hereto or its Affiliates, and (b) all filings, applications and other submissions made pursuant to this Agreement, to the extent practicable, shall be withdrawn from the agency or other Person to which they were made or appropriately amended to reflect the termination of the Transactions; provided, however, that nothing contained in this Section 9 shall relieve any party from liability for fraud or any intentional or willful breach of this Agreement.

10. Survival. The representations and warranties contained in this Agreement shall survive the Closing of the Transactions until the date that is one (1) year following the date of this Agreement. The covenants and agreements contained in this Agreement shall survive Closing of the Transactions. The rights and remedies that may be exercised by the Share Acquiror shall not be limited or otherwise affected by or as a result of any information furnished to, or any investigation made by or knowledge of, the Share Acquiror or its representatives.

11. Miscellaneous.

11.1 Governing Law; Submission to Jurisdiction. This Agreement shall be governed by and construed in accordance with the Laws of the State of Delaware, without regard to the conflict of laws principles thereof that would require the application of the Law of any other jurisdiction. Any action brought, arising out of, or relating to this Agreement shall, if it has jurisdiction, be brought in the Court of Chancery of the State of Delaware. Each party hereby irrevocably submits to the exclusive jurisdiction of said Court in respect of any claim relating to the validity, interpretation and enforcement of this Agreement, and hereby waives, and agrees not to assert, as a defense in any action, suit or proceeding in which any such claim is made that it is not subject thereto or that such action, suit or proceeding may not be brought or is not maintainable in such courts, or that the venue thereof may not be appropriate or that this Agreement may not be enforced in or by such courts. The parties hereby consent to and grant the Court of Chancery of

the State of Delaware jurisdiction over such parties and over the subject matter of any such claim and agree that mailing of process or other papers in connection with any such action, suit or proceeding in the manner provided in Section 11.3 hereof or in such other manner as may be permitted by Law, shall be valid and sufficient thereof.

11.2 No Waiver, Modifications. It is agreed that no waiver by a party hereto of any breach or default of any of the covenants or agreements set forth herein shall be deemed a waiver as to any subsequent or similar breach or default. The failure of either party to insist on the performance of any obligation hereunder shall not be deemed a waiver of any such obligation. No amendment, modification, waiver, release or discharge to this Agreement shall be binding upon the parties unless in writing and duly executed by authorized representatives of both parties.

11.3 Notices. Any consent, notice, report or other communication required or permitted to be given or made under this Agreement by one of the parties to the other party will be delivered in writing by one of the following means and be effective: (a) upon receipt, if delivered personally; (b) when sent, if sent via e-mail (provided that such sent e-mail is kept on file (whether electronically or otherwise) by the sending party and the sending party does not immediately receive an automatically generated message from the recipient's e-mail server that such e-mail could not be delivered to such recipient); (c) when sent, if sent by facsimile (provided confirmation of transmission is mechanically or electronically generated and kept on file by the sending party); or (d) when delivered by a reputable, commercial overnight courier; provided in all cases addressed to such other party at its address indicated below, or to such other address as the addressee will have last furnished in writing to the addressor and will be effective upon receipt by the addressee.

If to Share Acquiror:

Eli Lilly and Company
Lilly Corporate Center
Indianapolis, IN 46285
Attention: General Counsel
Facsimile No.: (317) 433-3000
e-mail:

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

Weil, Gotshal & Manges, LLP
767 Fifth Avenue
New York, NY 10153
Attention: Raymond O. Gietz
e-mail: Raymond.Gietz@weil.com

If to the Company:

Dicerna Pharmaceuticals, Inc.
87 Cambridgepark Drive
Cambridge, MA 02140

Attention: Jack Green
Facsimile: 617-612-6298
e-mail: jgreen@dicema.com

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

Sidley Austin LLP
1001 Page Mill Road, Building 1, Suite 100
Palo Alto, California 94304
Attention: Sam Zucker
Facsimile: (650) 565-7100
e-mail: szucker@sidley.com

Written confirmation of receipt (i) given by the recipient of such notice, (ii) mechanically or electronically generated by the sender's facsimile machine containing the time, date and recipient facsimile number or (iii) provided by an overnight courier service shall be rebuttable evidence of personal service, receipt by facsimile or receipt from an overnight courier service in accordance with clause (a), (c) or (d) above, respectively. A copy of the e-mail transmission containing the time, date and recipient e-mail address shall be rebuttable evidence of receipt by e-mail in accordance with clause (b) above.

11.4 Entire Agreement. This Agreement (including all exhibits, schedules and annexes attached hereto) and the License Agreement contain the entire agreement among the parties with respect to the subject matter hereof and thereof and supersede all prior and contemporaneous arrangements or understandings, whether written or oral, with respect hereto and thereto.

11.5 Headings; Nouns and Pronouns; Section References. Headings in this Agreement are for convenience of reference only and shall not be considered in construing this Agreement. Whenever the context may require, any pronouns used herein shall include the corresponding masculine, feminine or neuter forms, and the singular form of names and pronouns shall include the plural and vice-versa. References in this Agreement to a section or subsection shall be deemed to refer to a section or subsection of this Agreement unless otherwise expressly stated.

11.6 Severability. If any provision of this Agreement is held to be illegal, invalid or unenforceable under any present or future Law, (a) such provision shall be fully severable, (b) this Agreement shall be construed and enforced as if such illegal, invalid or unenforceable provision had never comprised a part hereof, (c) the remaining provisions of this Agreement shall remain in full force and effect and shall not be affected by the illegal, invalid or unenforceable provision or by its severance herefrom, and (d) in lieu of such illegal, invalid or unenforceable provision, the parties shall negotiate in good faith a substitute legal, valid and enforceable provision as similar in terms to such illegal, invalid or unenforceable provision as possible and as reasonably acceptable to the parties.

11.7 Assignment. Except for an assignment by the Share Acquiror of this Agreement or any rights hereunder to an Affiliate or Permitted Transferee (which assignment will

not relieve the Share Acquiror of any obligation hereunder), neither this Agreement nor any of the rights or obligations hereunder may be assigned by either the Share Acquiror or the Company without (a) the prior written consent of Company in the case of any assignment by the Share Acquiror or (b) the prior written consent of the Share Acquiror in the case of an assignment by the Company.

11.8 Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and permitted assigns.

11.9 Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original but which together shall constitute one and the same instrument. In the event that any signature is delivered by facsimile transmission or by an e-mail which contains a portable document format (.pdf) file of an executed signature page, such executed signature page shall create a valid and binding obligation of the party executing it (or on whose behalf such signature page is executed) with the same force and effect as if such executed signature page were an original thereof.

11.10 Third Party Beneficiaries. None of the provisions of this Agreement shall be for the benefit of or enforceable by any Third Party, including any creditor of any party hereto, except that each Affiliate of the Share Acquiror is an express third party beneficiary entitled to enforce this Agreement directly against the Company. No Third Party shall obtain any right under any provision of this Agreement or shall by reason of any such provision make any claim in respect of any debt, liability or obligation (or otherwise) against any party hereto.

11.11 No Strict Construction. This Agreement has been prepared jointly and will not be construed against either party. No presumption as to construction of this Agreement shall apply against either party with respect to any ambiguity in the wording of any provision(s) of this Agreement irrespective of which party may be deemed to have authored the ambiguous provision(s).

11.12 Remedies. The rights, powers and remedies of the parties under this Agreement are cumulative and not exclusive of any other right, power or remedy which such parties may have under any other Contract or Law. No single or partial assertion or exercise of any right, power or remedy of a party hereunder shall preclude any other or further assertion or exercise thereof. The parties hereby acknowledge and agree that the rights of the parties hereunder are special, unique and of extraordinary character, and that if any party refuses or otherwise fails to act, or to cause its Affiliates to act, in accordance with the provisions of this Agreement, such refusal or failure would result in irreparable injury to the Company or the Share Acquiror as the case may be, the exact amount of which would be difficult to ascertain or estimate and the remedies at law for which would not be reasonable or adequate compensation. Accordingly, if any party refuses or otherwise fails to act, or to cause its Affiliates to act, in accordance with the provisions of this Agreement, then, in addition to any other remedy which may be available to any damaged party at law or in equity, such damaged party will be entitled to seek specific performance and injunctive relief, without posting bond or other security, and without the necessity of proving actual or threatened damages, which remedy such damaged party will be entitled to seek in any court of competent jurisdiction.

11.13 Expenses. Each party shall pay its own fees and expenses in connection with the preparation, negotiation, execution, delivery and performance of the Transaction Agreements.

[Signature Page Follows]

IN WITNESS WHEREOF, the parties have executed and delivered this Agreement as of the date first above written.

Dicerna Pharmaceuticals, Inc., a Delaware corporation

By: /s/ Douglas Fambrough

Name: Douglas Fambrough

Title: Chief Executive Officer

Eli Lilly and Company, an Indiana corporation

By: /s/ David A. Ricks

Name: David A. Ricks

Title: Chairman and CEO, Eli Lilly

Signature Page to Eli Lilly Share Issuance Agreement

APPENDIX 1

REGISTRATION RIGHTS

1. **Resale Registration.**

1.1 On or prior to the first (1st) Business Day following the expiration of the Lockup Period, the Company will file a Shelf Registration Statement registering for resale the Registrable Securities under the Securities Act. The Company shall use its commercially reasonable efforts to cause such Shelf Registration Statement to become effective as promptly as practicable after filing. Until the earlier of such time as (i) all Registrable Securities cease to be Registrable Securities or (ii) the Company is no longer eligible to maintain a Shelf Registration Statement, the Company will keep current and effective such Shelf Registration Statement and file such supplements or amendments to such Shelf Registration Statement (or file a new Shelf Registration Statement when such preceding Shelf Registration Statement expires pursuant to the rules of the SEC) as may be necessary or appropriate in order to keep such Shelf Registration Statement continuously effective and useable for the resale of Registrable Securities under the Securities Act. The Shelf Registration Statement shall include the Plan of Distribution attached hereto as Annex A.

1.2 If the filing, initial effectiveness or continued use of the Shelf Registration Statement at any time would require the Company to make a public disclosure of material non-public information that the Company has a bona fide business purpose for not disclosing publicly at such time, the Company may, upon giving prompt written notice of such action to the Share Acquiror, delay the filing or initial effectiveness of, or suspend use of, the Shelf Registration Statement (a "**Suspension**"); provided, however, that the Company shall not be permitted to exercise a Suspension more than once during any twelve (12) month period for a period not to exceed sixty (60) days. In the case of a Suspension, the Share Acquiror agrees to suspend use of the applicable Prospectus in connection with any sale or purchase, or offer to sell or purchase, Shares, upon receipt of the notice referred to above. The Company shall immediately notify the Share Acquiror in writing upon the termination of any Suspension, amend or supplement the Prospectus, if necessary, so it does not contain any untrue statement or omission and furnish to the Share Acquiror such numbers of copies of the Prospectus as so amended or supplemented as the Share Acquiror may reasonably request. The Company shall, if necessary, supplement or amend the Shelf Registration Statement, if required by law or as may reasonably be requested by the Share Acquiror.

2. **Information.** The Company may require the Share Acquiror to furnish to the Company such information regarding the distribution of the Shares and such other information relating to the Share Acquiror and its ownership of Shares as the Company may from time to time reasonably request in writing to the extent that such information is required to be included in the Shelf Registration Statement.

3. **Expenses.** All expenses incident to the Company's performance of or compliance with this Agreement shall be paid by the Company, including (a) all registration and filing fees, and any other fees and expenses associated with filings required to be made with the SEC or Financial Industry Regulatory Authority, (b) all fees and expenses in connection with compliance

with any securities or “Blue Sky” laws (including reasonable fees and disbursements of counsel for the Underwriters in connection with blue sky qualifications of the Shares), (c) all printing, duplicating, word processing, messenger, telephone, facsimile and delivery expenses (including expenses of printing certificates for the Shares in a form eligible for deposit with The Depository Trust Company and of printing Prospectuses), (d) all fees and disbursements of counsel for the Company and of all independent certified public accountants or independent auditors of the Company and any of its Subsidiaries (including the expenses of any special audit and comfort letters required by or incident to such performance), (e) Securities Act liability insurance or similar insurance if the Company so desires, (f) all fees and expenses incurred in connection with the listing of the Shares on any securities exchange or quotation of the Shares on any inter-dealer quotation system, (g) all fees and expenses of any special experts or other Persons retained by the Company in connection with any registration, and (h) all of the Company’s internal expenses (including all salaries and expenses of its officers and employees performing legal or accounting duties). For the avoidance of doubt, the Company shall not be required to pay any underwriting discounts and commissions and transfer Taxes, if any, attributable to the sale of the Shares.

4. Notice. The Company shall notify the Share Acquiror immediately upon (a) any request by the SEC or any other Federal or state Governmental Authority for amendments or supplements to a Shelf Registration Statement or for additional information that pertains to the Share Acquiror as a selling stockholder; (b) the issuance by the SEC of any stop order suspending the effectiveness of the Shelf Registration Statement or any order by the SEC or any other regulatory authority preventing or suspending the use of any Prospectus or the initiation or threatening of any proceedings for such purposes, (c) receipt by the Company of any notification with respect to the suspension of the qualification of the Shares for offering or sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose, or (d) the Company becoming aware that the Shelf Registration Statement or the related Prospectus contains any untrue statement of a material fact or omits to state a material fact necessary to make the statements therein (in the case of such Prospectus, in light of the circumstances under which they were made) not misleading.

5. Indemnification.

5.1 To the extent permitted by Law, the Company will indemnify and hold harmless the Share Acquiror, its officers, directors, agents, partners, members, stockholders and employees, as applicable, and each Person who controls the Share Acquiror (within the meaning of the Securities Act or the Exchange Act), and the officers, directors, agents, partners, members, stockholders and employees of each such controlling Person, from and against any and all losses, claims, liabilities, damages, deficiencies, assessments, fines, judgments, fees, costs (including, without limitation, reasonable costs of preparation and reasonable attorneys’ fees) and expenses (collectively “**Losses**”) (joint or several), as incurred, to which they may become subject under the Securities Act, the Exchange Act or other federal or state law, insofar as such Losses (or actions in respect thereof) arise out of, relate to, or are based upon any of the following statements, omissions or violations (collectively a “**Violation**”) by the Company: (a) any untrue statement or alleged untrue statement of a material fact contained in the Shelf Registration Statement or incorporated by reference therein, including any Prospectus contained therein or any amendments or supplements thereto, (b) 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, or (c) any

violation or alleged violation by the Company of the Securities Act, the Exchange Act, any state securities Law, or any rule or regulation promulgated under the Securities Act, the Exchange Act or any state securities Law in connection with the Shelf Registration Statement; and the Company will reimburse each such indemnified party for any legal or other expenses reasonably incurred by them in connection with investigating or defending any such Loss or action if it is judicially determined that there was such a Share Acquiror Violation; provided however, that the indemnity agreement contained in this Section 5.1 will not apply to amounts paid in settlement of any such Loss or action if such settlement is effected without the Company's consent, nor will the Company be liable in any such case for any such Loss to the extent that it arises out of or is based upon a Violation which occurs in reliance upon and in conformity with written information furnished by the Share Acquiror and stated to be expressly for use in connection with the Shelf Registration Statement or an applicable Prospectus.

5.2 To the extent permitted by Law, the Share Acquiror will indemnify and hold harmless the Company and each of its directors and its officers against any Losses (joint or several) to which the Company or any such director, officer, controlling Person, Underwriter or other Third Party who may become subject under the Securities Act, the Exchange Act or other federal or state law, insofar as such Losses (or actions in respect thereto) arise out of or are based upon any of the following statements: (a) any untrue statement or alleged untrue statement of a material fact contained in any Registration Statement or any other document incorporated reference therein, including any preliminary Prospectus or final Prospectus contained therein or any amendments or supplements thereto, or (b) 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 (collectively, a "**Share Acquiror Violation**"), in each case to the extent (and only to the extent) that such Share Acquiror Violation occurs in reliance upon and in conformity with written information furnished by the Share Acquiror under an instrument duly executed by the Share Acquiror; and the Share Acquiror will reimburse any legal or other expenses reasonably incurred by the Company or any such director, officer, controlling Person, Underwriter or other Third Party in connection with investigating or defending any such Loss or action if it is judicially determined that there was such a Share Acquiror Violation; provided, however, that the indemnity agreement contained in this Section 5.2 will not apply to amounts paid in settlement of any such Loss or action if such settlement is effected without the Share Acquiror's consent; provided, further that the obligations of the Share Acquiror hereunder shall be limited to an amount equal to the net proceeds it receives in such Registration.

5.3 Promptly after receipt by an indemnified party under this Section 5 of notice of the commencement of any action (including any governmental action), such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Section 5, deliver to the indemnifying party a written notice of the commencement thereof and the indemnifying party will have the right to participate in, and, to the extent the indemnifying party so desires, jointly with any other indemnifying party similarly noticed, to assume the defense thereof with counsel mutually satisfactory to the parties; provided, however, that an indemnified party will have the right to retain its own counsel, with the fees and expenses thereof to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual or potential differing interests between such indemnified party and any other party represented by such counsel in such proceeding. The failure to deliver written notice to the indemnifying party within a reasonable time of the

commencement of any such action will relieve such indemnifying party of any liability to the indemnified party under this Section 5 to the extent, and only to the extent, prejudicial to its ability to defend such action, but the omission so to deliver written notice to the indemnifying party will not relieve it of any liability that it may have to any indemnified party otherwise than under this Section 5.

5.4 If the indemnification provided for in this Section 5 is held by a court of competent jurisdiction to be unavailable to an indemnified party with respect to any Losses referred to herein, the indemnifying party, in lieu of indemnifying such indemnified party thereunder, will to the extent permitted by applicable Law contribute to the amount paid or payable by such indemnified party as a result of such Loss in such proportion as is appropriate to reflect the relative fault of the indemnifying party, on the one hand, and of the indemnified party, on the other, in connection with the Violation(s) or Share Acquiror Violation(s), as applicable, that resulted in such Loss, as well as any other relevant equitable considerations. The relative fault of the indemnifying party and of the indemnified party will be determined by a court of law by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission to state a material fact relates to information supplied by the indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission; provided, however, that the obligations of the Share Acquiror hereunder shall be limited to an amount equal to the net proceeds it receives in such Registration; and provided, further, that no Person guilty of fraudulent misrepresentation within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation.

5.5 The obligations of the Company and the Share Acquiror under this Section 5 will survive termination of this Agreement and the expiration or withdrawal of the Shelf Registration Statement. No indemnifying party, in the defense of any such claim or litigation, will, except with the consent of each indemnified party, consent to entry of any judgment or enter into any settlement which does not include as an unconditional term thereof the giving by the claimant or plaintiff to such indemnified party of a release from all liability in respect to such claim or litigation.

[Remainder of page intentionally left blank]

ANNEX A

PLAN OF DISTRIBUTION

The selling securityholders, including their pledgees, donees, transferees, distributees, beneficiaries or other successors in interest, may from time to time offer some or all of the shares of common stock (collectively, “**Securities**”) covered by this prospectus. To the extent required, this prospectus may be amended and supplemented from time to time to describe a specific plan of distribution.

The selling securityholders will not pay any of the costs, expenses and fees in connection with the registration and sale of the Securities covered by this prospectus, but they will pay any and all underwriting discounts, selling commissions and stock transfer taxes, if any, attributable to sales of the Securities. We will not receive any proceeds from the sale of Securities.

The selling securityholders may sell the Securities covered by this prospectus from time to time, and may also decide not to sell all or any of the Securities that they are allowed to sell under this prospectus. The selling securityholders will act independently of us in making decisions regarding the timing, manner and size of each sale. These dispositions may be at fixed prices, at market prices prevailing at the time of sale, at prices related to such prevailing market prices, at varying prices determined at the time of sale, or at privately negotiated prices. Sales may be made by the selling securityholders in one or more types of transactions, which may include:

- purchases by underwriters, dealers and agents who may receive compensation in the form of underwriting discounts, concessions or commissions from the selling securityholders and/or the purchasers of the Securities for whom they may act as agent;
- one or more block transactions, including transactions in which the broker or dealer so engaged will attempt to sell the Securities as agent but may position and resell a portion of the block as principal to facilitate the transaction, or in crosses, in which the same broker acts as an agent on both sides of the trade;
- ordinary brokerage transactions or transactions in which a broker solicits purchases;
- purchases by a broker-dealer or market maker, as principal, and resale by the broker-dealer for its account;
- the pledge of Securities for any loan or obligation, including pledges to brokers or dealers who may from time to time effect distributions of Securities, and, in the case of any collateral call or default on such loan or obligation, pledges or sales of Securities by such pledgees or secured parties;
- short sales or transactions to cover short sales relating to the Securities;
- one or more exchanges or over the counter market transactions;
- through distribution by a selling securityholder or its successor in interest to its members, general or limited partners or shareholders (or their respective members, general or limited partners or shareholders);
- privately negotiated transactions;

-
- the writing of options, whether the options are listed on an options exchange or otherwise;
 - distributions to creditors and equity holders of the selling securityholders; and
 - any combination of the foregoing, or any other available means allowable under applicable law.

A selling securityholder may also resell all or a portion of its Securities in open market transactions in reliance upon Rule 144 under the Securities Act of 1933, as amended (the “**Securities Act**”) provided it meets the criteria and conforms to the requirements of Rule 144 under the Securities Act and all applicable laws and regulations.

The selling securityholders may enter into sale, forward sale and derivative transactions with third parties, or may sell securities not covered by this prospectus to third parties in privately negotiated transactions. In connection with those sale, forward sale or derivative transactions, the third parties may sell securities covered by this prospectus, including in short sale transactions and by issuing securities that are not covered by this prospectus but are exchangeable for or represent beneficial interests in the common stock. The third parties also may use shares of common stock received under those sale, forward sale or derivative arrangements or shares of common stock pledged by the selling securityholder or borrowed from the selling securityholders or others to settle such third-party sales or to close out any related open borrowings of common stock. The third parties may deliver this prospectus in connection with any such transactions. Any third party in such sale transactions will be an underwriter and will be identified in a supplement or a post-effective amendment to the registration statement of which this prospectus is a part, as may be required.

In addition, the selling securityholders may engage in hedging transactions with broker-dealers in connection with distributions of Securities or otherwise. In those transactions, broker-dealers may engage in short sales of securities in the course of hedging the positions they assume with selling securityholders. The selling securityholders may also sell securities short and redeliver securities to close out such short positions. The selling securityholders may also enter into option or other transactions with broker-dealers which require the delivery of securities to the broker-dealer. The broker-dealer may then resell or otherwise transfer such securities pursuant to this prospectus. The selling securityholders also may loan or pledge Securities, and the borrower or pledgee may sell or otherwise transfer the Securities so loaned or pledged pursuant to this prospectus. Such borrower or pledgee also may transfer those Securities to investors in our securities or the selling securityholders’ securities or in connection with the offering of other securities not covered by this prospectus.

To the extent necessary, the specific terms of the offering of Securities, including the specific Securities to be sold, the names of the selling securityholders, the respective purchase prices and public offering prices, the names of any underwriter, broker-dealer or agent, if any, and any applicable compensation in the form of discounts, concessions or commissions paid to underwriters or agents or paid or allowed to dealers will be set forth in a supplement to this prospectus or a post-effective amendment to this registration statement of which this prospectus forms a part. The selling securityholders may, or may authorize underwriters, dealers and agents to, solicit offers from specified institutions to purchase Securities from the selling securityholders. These sales may be made under “delayed delivery contracts” or other purchase contracts that provide for payment and delivery on a specified future date. If necessary, any such contracts will be described and be subject to the conditions set forth in a supplement to this prospectus or a post-effective amendment to this registration statement of which this prospectus forms a part.

Broker-dealers or agents may receive compensation in the form of commissions, discounts or concessions from the selling securityholders. Broker-dealers or agents may also receive compensation from the purchasers of Securities for whom they act as agents or to whom they sell as principals, or both. Compensation to a particular broker-dealer might be in excess of customary commissions and will be in amounts to be negotiated in connection with transactions involving securities. In effecting sales, broker-dealers engaged by the selling securityholders may arrange for other broker-dealers to participate in the resales.

In connection with sales of Securities covered hereby, the selling securityholders and any underwriter, broker-dealer or agent and any other participating broker-dealer that executes sales for the selling securityholders may be deemed to be an “underwriter” within the meaning of the Securities Act. Accordingly, any profits realized by the selling securityholders and any compensation earned by such underwriter, broker-dealer or agent may be deemed to be underwriting discounts and commissions. Selling securityholders who are “underwriters” under the Securities Act must deliver this prospectus in the manner required by the Securities Act. This prospectus delivery requirement may be satisfied through the facilities of the New York Stock Exchange in accordance with Rule 153 under the Securities Act or satisfied in accordance with Rule 174 under the Securities Act.

We and the selling securityholders have agreed to indemnify each other against certain liabilities, including liabilities under the Securities Act. In addition, we or the selling securityholders may agree to indemnify any underwriters, broker-dealers and agents against or contribute to any payments the underwriters, broker-dealers or agents may be required to make with respect to, civil liabilities, including liabilities under the Securities Act. Underwriters, broker-dealers and agents and their affiliates are permitted to be customers of, engage in transactions with, or perform services for us and our affiliates or the selling securityholders or their affiliates in the ordinary course of business.

The selling securityholders will be subject to the applicable provisions of Regulation M of the Securities Exchange Act of 1934 and the rules and regulations thereunder, which provisions may limit the timing of purchases and sales of any of the Securities by the selling securityholders. Regulation M may also restrict the ability of any person engaged in the distribution of the Securities to engage in market-making activities with respect to the Securities. These restrictions may affect the marketability of such Securities.

In order to comply with applicable securities laws of some states or countries, the Securities may only be sold in those jurisdictions through registered or licensed brokers or dealers and in compliance with applicable laws and regulations. In addition, in certain states or countries the Securities may not be sold unless they have been registered or qualified for sale in the applicable state or country or an exemption from the registration or qualification requirements is available. In addition, any Securities of a selling securityholder covered by this prospectus that qualify for sale pursuant to Rule 144 under the Securities Act may be sold in open market transactions under Rule 144 rather than pursuant to this prospectus.

In connection with an offering of Securities under this prospectus, the underwriters may purchase and sell securities in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve

the sale by the underwriters of a greater number of securities than they are required to purchase in an offering. Stabilizing transactions consist of certain bids or purchases made for the purpose of preventing or retarding a decline in the market price of the securities while an offering is in progress.

The underwriters also may impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the underwriters have repurchased securities sold by or for the account of that underwriter in stabilizing or short-covering transactions.

These activities by the underwriters may stabilize, maintain or otherwise affect the market price of the Securities offered under this prospectus. As a result, the price of the Securities may be higher than the price that otherwise might exist in the open market. If these activities are commenced, they may be discontinued by the underwriters at any time. These transactions may be effected on the Nasdaq Global Select Market or another securities exchange or automated quotation system, or in the over-the-counter market or otherwise.

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