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

FORM 8-K

**CURRENT REPORT
PURSUANT TO SECTION 13 OR 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934**

Date of Report (Date of earliest event reported): March 24, 2006

Idera Pharmaceuticals, Inc.

(Exact name of Registrant as Specified in its Charter)

Delaware
(State or Other Jurisdiction
of Incorporation)

001-31918
(Commission File Number)

04-3072298
(IRS Employer Identification No.)

345 Vassar Street, Cambridge, Massachusetts 02139
(Address of Principal Executive Offices)

02139
(Zip Code)

Registrant's telephone number, including area code: (617) 679-5500

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

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
 - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
 - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
 - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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Item 1.01. Entry Into a Material Definitive Agreement

Private Financing

On March 24, 2006, Idera Pharmaceuticals, Inc. (the “Company”) raised \$9.75 million in gross proceeds from a private financing (the “Private Financing”) with institutional investors led by Baker Brothers Investments (“Baker Brothers”). In connection with the Private Financing, the Company entered into the following agreements:

- Common Stock Purchase Agreement, dated March 24, 2006, with the institutional investors, including Baker Brothers (the “Investors”). Pursuant to this purchase agreement, the Company issued and sold to the Investors, for an aggregate purchase price of \$9.75 million (or \$0.44 per share), 22,159,092 shares of its common stock and warrants to purchase up to an aggregate of 16,619,319 shares of its common stock. Under the terms of the purchase agreement, the Company granted the Investors certain participation rights in future financings and granted Baker Brothers the right for a 12 month period to designate an individual for election to the board of directors of the Company.
- The warrants to purchase common stock issued pursuant to the purchase agreement have an exercise price of \$0.65 per share and are exercisable for a five-year period beginning in September 2006. These warrants are subject to redemption at the election of the Company at any time after March 24, 2010 upon 20 days’ prior written notice, at a price of \$0.01 per warrant share, if the volume weighted average of the closing sales prices of the Company’s common stock exceeds 300% of the exercise price for 15 or more consecutive trading days immediately prior to delivery of the notice of redemption.
- Registration Rights Agreement, dated March 24, 2006, among the Company and the Investors. Pursuant to this registration rights agreement, the Company has agreed to file a registration statement with the Securities and Exchange Commission (the “Commission”) registering the resale of the shares of common stock issued and sold to the Investors and the shares of its common stock issuable upon exercise of the warrants issued to the Investors. The Company will be subject to certain penalties if (i) the Company does not file the registration statement on or prior to April 23, 2006, (ii) the registration statement is not declared effective by the Commission on or prior to July 22, 2006, or (iii) the effective registration statement is suspended for specified reasons. The Company is required to use its best efforts to maintain the registration statement’s effectiveness until all the shares of common stock covered by the registration statement may be sold under Rule 144(k) of the Securities Act of 1933, as amended (the “Securities Act”), or have been sold by the investors.

Private Financing Commitment

On March 24, 2006, the Company secured a commitment (the “Commitment”) from Biotech Shares Ltd. (“Biotech Shares”) to purchase from the Company up to a total of \$9.75 million of common stock. In connection with the Commitment, the Company entered into the following agreements:

- Common Stock Purchase Agreement, dated March 24, 2006, between the Company and Biotech Shares. Pursuant to this purchase agreement, Biotech Shares has agreed to purchase up to a total of \$9.75 million of common stock during the period from June 24, 2006 through December 31, 2006 in up to three drawdowns made by the Company, at the Company’s discretion. In each drawdown, the shares of common stock will be sold at a price equal to 80% of the volume weighted average of the closing prices of the common stock on the five trading days preceding
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the drawdown notice, but such purchase price in no event will be less than \$0.64 per share (the “Floor Price”). Based on the Floor Price, a maximum of 15,234,375 shares of common stock could be issued under the Commitment. The Company is not obligated to sell any of the \$9.75 million of common stock available under the Commitment and there are no minimum commitments or minimum use penalties. The Company’s ability to make drawdowns is conditioned upon (i) the effectiveness of a registration statement covering the resale of the shares to be issued under the purchase agreement, except that the Company may drawdown up to \$2.5 million prior to such registration statement being declared effective (the “\$2.5 Million Exception”), and (ii) stockholder approval of an increase in the Company’s authorized common stock, which the Company expects to seek at its 2006 annual meeting of stockholders. No drawdown may occur within 45 days of any other drawdown, and no single drawdown may exceed \$4.0 million. Biotech Shares’s commitment to purchase the common stock is supported by a letter of credit confirmed by JPMorgan Chase Bank, N.A.

- Engagement Letter, dated March 24, 2006, between the Company and Youssef El Zein, a member of the Company’s board of directors (the “Engagement Letter”). Pursuant to the Engagement Letter, the Company engaged Mr. El Zein to assist the Company as a placement agent in securing the Commitment. For such services, the Company agreed to pay Mr. El Zein a commission equal in value to 5% of the amount available to the Company under the purchase agreement. The Company has paid Mr. El Zein \$262,500 of such commission in cash. The Company and Mr. El Zein are discussing the form of payment for the balance of the commission.
- Registration Rights Agreement, dated March 24, 2006, among the Company, Biotech Shares and Mr. El Zein. Pursuant to this registration rights agreement, the Company has agreed to use its best efforts (i) to file a registration statement with the Commission on or prior to May 23, 2006, registering the resale of the shares of its common stock issuable upon the exercise of the warrants issued to Biotech Shares in connection with the Commitment, (ii) to file an additional registration statement with the Commission on or prior to June 22, 2006, registering the resale of the balance of the shares of common stock that may be issued to Biotech Shares pursuant to the purchase agreement, and (iii) if the Company issued shares in accordance with the \$2.5 Million Exception, to file an additional registration statement with the Commission within 60 days of the date such shares are issued by the Company covering the resale of such shares. The Company has agreed to use its best efforts to have each registration statement declared effective within 90 days from the filing date of such registration statement and to maintain the effectiveness of each registration statement until all the shares of common stock covered by such registration statement may be sold without restriction by the volume limitations of Rule 144(e) under the Securities Act or have been sold by the investors.
- In connection with the Commitment, the Company issued to Biotech Shares warrants to purchase up to 6,093,750 shares of common stock at an exercise price of \$0.74 per share. The warrants are exercisable for a five-year period beginning in September 2006. The warrants are subject to redemption at the election of the Company at any time after March 24, 2010 upon 30 days’ prior written notice, at a price of \$0.01 per warrant share, if the closing sales price of the Company’s common stock on each day of a 15 consecutive trading day period ending within 30 days prior to the notice of redemption is greater than or equal to 250% of the exercise price.

Amendment to Rights Agreement

On March 24, 2006, in connection with the Private Financing, the Company entered into an amendment (“Amendment No. 2”) to the Rights Agreement, dated as of December 10, 2001, as amended (the “Rights Agreement”), between the Company and Mellon Investor Services LLC, as Rights Agent.

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Amendment No. 2 modifies the definition of Exempted Persons that are excluded from the definition of Acquiring Person under the Rights Agreement to provide that Baker Brothers, together with its affiliates and associates (the “Baker Entities”), will be an Exempted Person under the Rights Agreement until such time as the Baker Entities beneficially own more than 35,000,000 shares of the Company’s common stock (subject to adjustment) or less than 14% of the common stock then outstanding.

Item 3.02. Unregistered Sales of Equities Securities

Private Financing

On March 24, 2006, the Company raised \$9.75 million in gross proceeds from the Private Financing. In the Private Financing, the Company sold 22,159,092 million shares of its common stock and warrants to purchase 16,619,319 million shares of its common stock. The warrants to purchase common stock have an exercise price of \$0.65 per share and are exercisable for a five-year period beginning in September 2006.

The shares of common stock and warrants to purchase common stock offered and sold in the Private Financing were offered and sold to “accredited investors” without registration under the Securities Act or the securities laws of certain states, in reliance on the exemptions provided by Section 4(2) of the Securities Act and Regulation D promulgated thereunder.

Private Financing Commitment

On March 24, 2006, the Company secured the Commitment from Biotech Shares to purchase up to \$9.75 million in common stock during the period from June 24, 2006 through December 31, 2006 in up to three drawdowns made by the Company, at the Company’s discretion, as described in Item 1.01 above. The Company expects to sell such common stock to be sold in reliance on the exemptions provided by Section 4(2) of the Securities Act and Regulation S promulgated thereunder.

In connection with the Commitment, the Company issued to Biotech Shares warrants to purchase up to 6,093,750 shares of common stock at an exercise price of \$0.74 per share. The warrants are exercisable for a five-year period beginning in September 2006. The warrants were issued without registration under the Securities Act or the securities laws of certain states in reliance on the exemptions provided by Section 4(2) of the Securities Act and Regulation S promulgated thereunder.

Item 9.01. Financial Statements and Exhibits

(c) Exhibits

See Exhibit Index attached hereto.

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SIGNATURE

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

IDERA PHARMACEUTICALS, INC.

Date: March 29, 2006

By: /s/ Robert G. Andersen

Robert G. Andersen
Chief Financial Officer and
Vice President of Operations

EXHIBIT INDEX

<u>Exhibit No.</u>	<u>Description</u>
4.1	Amendment No. 2 Rights Agreement, dated as of March 24, 2006, between the Company and Mellon Investor Services LLC, as amended.
10.1	Common Stock Purchase Agreement, dated March 24, 2006, by and among the Company and the Investors named therein.
10.2	Registration Rights Agreement, dated March 24, 2006, by and among the Company and the Investors named therein.
10.3	Form of Warrant issued to Investors in the Company's March 24, 2006 Private Financing.
10.4	Common Stock Purchase Agreement, dated March 24, 2006, by and between the Company and Biotech Shares Ltd.
10.5	Engagement Letter, dated March 24, 2006, between the Company and Youssef El Zein.
10.6	Registration Rights Agreement, dated March 24, 2006, by and among the Company, Biotech Shares Ltd. and Youssef El Zein.
10.7	Warrant issued to Biotech Shares Ltd. on March 24, 2006.

AMENDMENT NO. 2
TO
RIGHTS AGREEMENT

This AMENDMENT NO. 2 TO RIGHTS AGREEMENT (the "Amendment") is entered into as of March 24, 2006, between Idera Pharmaceuticals, Inc., a Delaware corporation (the "Company"), and Mellon Investor Services LLC, a New Jersey limited liability company, as Rights Agent (the "Rights Agent"). Capitalized terms not otherwise defined herein shall have the meanings given them in the Rights Agreement, dated as of December 10, 2001, as amended (the "Rights Agreement"), between the parties hereto.

RECITALS

WHEREAS, the Board has determined that it is in the best interest of the Company to amend the Rights Agreement to modify the definition of Exempted Person to exclude a certain stockholder of the Company from such definition in specified circumstances; and

WHEREAS, the Company has determined that the Rights Agreement be amended in accordance with Section 27 of the Rights Agreement, as set forth herein, and the Rights Agent is hereby directed to join in the amendment to the Rights Agreement as set forth herein.

AGREEMENT

NOW THEREFORE, the parties hereto, intending to be legally bound, hereby agree as follows:

1. Section 1(oo) of the Rights Agreement is hereby amended to read in its entirety as follows:

"(oo) "Exempted Person" shall mean Baker Brothers Investments, together with all of its Affiliates and Associates ("Baker Brothers"), unless and until such time as Baker Brothers, directly or indirectly, becomes the Beneficial Owner of more than 35,000,000 shares (subject to appropriate adjustment to reflect any stock split, reverse stock split, stock dividend, combination, reclassification or other similar recapitalization affecting such shares) of the Common Stock (disregarding for purposes of this calculation any shares of Common Stock purchased by Baker Brothers pursuant to the participation right (the "Participation Right") set forth in Section 5.2 of that certain Common Stock Purchase Agreement, dated March 24, 2006, by and among the Company and the purchasers listed in Exhibit A thereto (the "CSP Agreement")). Notwithstanding the preceding sentence, if following the date on which its Participation Right terminates in accordance with the CSP Agreement, Baker Brothers, directly or indirectly, is or becomes the Beneficial Owner of less than 14% of the Common Stock then outstanding, Baker Brothers immediately shall cease to be an Exempted Person. The Company acknowledges that the Rights Agent has no knowledge of the CSP Agreement.

2. Section 3(a) of the Rights Agreement is hereby amended by deleting the first sentence of Section 3(a) in its entirety and inserting in lieu thereof the following sentence:

"Section 3. Issuance of Rights.

(a) Until the earlier of (i) the Close of Business on the tenth Business Day (or such later date as may be determined by the Board) after the Stock Acquisition Date (or, if the tenth Business Day after the Stock Acquisition Date occurs before the Record Date, the close of business on the Record Date), or (ii) the Close of Business on the tenth Business Day (or such later date as may be determined by action of the Board) after the date that a tender or exchange offer (other than a Permitted Offer) by any Person (other than the Company, any Subsidiary of the Company, any employee benefit plan of the Company or of any Subsidiary of the Company, or any Person organized, appointed or established by the Company for or pursuant to the terms of any such plan) is first published or sent or given within

the meaning of Rule 14d-2 of the General Rules and Regulations under the Exchange Act, if upon consummation thereof, such Person would be the Beneficial Owner of 15% or more of the shares of Common Stock then outstanding (the earlier of (i) and (ii) being herein referred to as the "Distribution Date"), (x) the Rights will be evidenced by the certificates for the Common Stock registered in the names of the holders of the Common Stock (which certificates for Common Stock shall be deemed also to be certificates for Rights) and not by separate certificates, and (y) the Rights will be transferable only in connection with the transfer of the underlying shares of Common Stock (including a transfer to the Company)."

3. Except as amended hereby, the Rights Agreement shall remain unchanged and shall remain in full force and effect.
4. This Amendment may be executed in any number of counterparts, each of which shall be an original, but all of which together shall constitute one instrument.
5. This Amendment shall be deemed to be a contract made under the laws of the State of Delaware and for all purposes shall be governed by and construed in accordance with the laws of Delaware applicable to contracts made and to be performed entirely within Delaware; provided, however, that all rights, duties and obligations of the Rights Agent shall be governed by and construed in accordance with the laws of the State of New York applicable to contracts made and to be performed entirely within such state.

[remainder of page intentionally left blank]

IN WITNESS WHEREOF, the parties have caused this Amendment to be executed by their respective duly authorized representatives as of the date first above written.

IDERA PHARMACEUTICALS, INC.

By: /s/ Sudhir Agrawal

Name: Sudhir Agrawal
Title: Chief Executive Officer

MELLON INVESTORS SERVICES LLC,
as Rights Agent

By: /s/ John J. Boryczki

Name: John J. Boryczki
Title: Client Relationship Executive

IDERA PHARMACEUTICALS, INC.

COMMON STOCK PURCHASE AGREEMENT

March 24, 2006

This Common Stock Purchase Agreement (this "AGREEMENT") is entered into as of the date set forth above by and among Idera Pharmaceuticals, Inc., a Delaware corporation (the "COMPANY"), and the undersigned purchasers (each a "PURCHASER" and collectively, the "PURCHASERS") set forth on the Schedule of Purchasers attached hereto as Exhibit A (the "SCHEDULE OF PURCHASERS"). The parties hereby agree as follows:

ARTICLE 1

AUTHORIZATION AND SALE OF SECURITIES

1.1 Authorization. The Company has duly authorized the sale and issuance to the Purchasers pursuant to the terms and conditions hereof of (i) up to 22,159,092 shares (the "SHARES") of its common stock, par value \$0.001 per share (the "COMMON STOCK"), and (ii) warrants to purchase up to 16,619,319 shares of Common Stock in the form attached hereto as Exhibit B (the "WARRANTS").

1.2 Sale of Securities. Subject to the terms and conditions hereof, at the Closing (as defined in Section 2.1 below) the Company will issue and sell to each Purchaser, and each Purchaser agrees, severally and not jointly, to purchase from the Company, the number of Shares, at a purchase price of \$0.44 per share, set forth opposite such Purchaser's name on the Schedule of Purchasers and for the aggregate purchase price set forth thereon. Payment of the purchase price for the Shares will be made by the Purchasers by wire transfer in same day funds. Concurrently with the closing of the purchase and sale of the Shares, the Company shall issue to each Purchaser a Warrant to purchase that number of shares of Common Stock equal to 75% of the number of shares of Common Stock purchased by such Purchaser as reflected on the Schedule of Purchasers.

ARTICLE 2

CLOSING; DELIVERY

2.1 Closing. The closing of the purchase by the Purchasers and the sale by the Company of the Shares (the "CLOSING") shall be held at the offices of Wilmer Cutler Pickering Hale and Dorr LLP, 60 State Street, Boston, Massachusetts 02109, as soon as practicable and as agreed to by the parties hereto but in no event later than three business days following the date of this Agreement, or at such other time and place as the Company and a majority in interest of the Purchasers may agree either in writing or orally (the "CLOSING DATE"). Concurrent with the Closing, each Purchaser and the Company shall execute and deliver the Registration Rights Agreement attached hereto as Exhibit C (the "RIGHTS AGREEMENT" and, together with this Agreement and the Warrants, the "TRANSACTION DOCUMENTS").

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2.2 Delivery. At the Closing, the Company will issue to each Purchaser: (i) a certificate in such Purchaser's name representing the Shares purchased by such Purchaser, against payment of the purchase price therefor and (ii) a Warrant.

ARTICLE 3

REPRESENTATIONS AND WARRANTIES OF THE COMPANY

The Company hereby represents and warrants to each Purchaser that except as set forth in the Exchange Act Reports (as defined in Section 3.16):

3.1 Organization and Qualification. The Company is a corporation duly incorporated, validly existing and in good standing under the laws of the State of Delaware, and the Company is qualified to do business as a foreign

corporation in each jurisdiction in which qualification is required, except where failure to so qualify would not reasonably be expected to have a Material Adverse Effect (as defined herein). For purposes of this Agreement, the term "MATERIAL ADVERSE EFFECT" shall mean a material adverse effect upon the business, financial condition, properties, or results of operations of the Company. The Company does not have any subsidiaries.

3.2 Authorized Capital Stock. Immediately prior to Closing, the Company will have (i) authorized 200,000,000 and outstanding 111,566,993 shares of Common Stock and (ii) authorized 5,000,000 shares of Preferred Stock, \$0.01 par value per share ("PREFERRED STOCK"), of which 1,500,000 shares have been designated Series A Convertible Preferred Stock, 655 shares of which are outstanding, and of which 200,000 shares have been designated Series C Junior Participating Preferred Stock, none of which are outstanding; the issued and outstanding shares of the Common Stock and Preferred Stock have been duly authorized and validly issued, are fully paid and nonassessable, have been issued in compliance in material respects with all federal and state securities laws, were not issued in violation of and are not subject to any preemptive rights or other rights to subscribe for or purchase securities granted by the Company, and conform (except with respect to the number of authorized, issued and outstanding shares) in all material respects to the description thereof contained in the Exchange Act Reports with the Securities and Exchange Commission (the "COMMISSION" or the "SEC") under the Securities Exchange Act of 1934, as amended (the "EXCHANGE ACT"), or in any Registration Statement on Form 8-A filed with the SEC by the Company. Except as disclosed in the Exchange Act Reports, the Company does not have outstanding any options to purchase, or any preemptive rights or other rights to subscribe for or to purchase, any securities or obligations convertible into, or any contracts or commitments requiring the Company to issue or sell, shares of its capital stock or any such options, rights, convertible securities or obligations, other than options granted under plans described in the Exchange Act Reports, securities issued under the common stock purchase agreement dated March 24, 2006 between the Company and Biotech Shares Ltd. (the "BIOTECH SHARES AGREEMENT") and warrants issued to Youssef El-Zein as agent of the Company in connection with the Biotech Shares Agreement. The description of the Company's stock, stock bonus and other stock plans or arrangements and the options or other rights granted and exercised thereunder, set forth in the Exchange Act Reports accurately and fairly presents in all material respects all material information with respect to such plans, arrangements, options and rights, as of the dates for which such information is given, that is required by the Exchange Act and the rules and regulations promulgated thereunder to be so described.

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3.3 Issuance, Sale and Delivery of the Shares. The Shares, Warrants and shares of Common Stock issuable upon exercise of the Warrants (the "WARRANT SHARES" and collectively with the Shares and the Warrants, the "SECURITIES") have been duly authorized and, when issued, delivered and paid for in the manner set forth in this Agreement and the Warrants, will be duly authorized, validly issued, fully paid and nonassessable and free and clear of all pledges, liens, and encumbrances imposed by the Company (other than restrictions on transfer under state and/or federal securities laws). No preemptive rights or other rights to subscribe for or purchase from the Company exist with respect to the issuance and sale of the Securities by the Company pursuant to this Agreement and the Warrants. Except as disclosed in the Exchange Act Reports, no stockholder of the Company has any right (which has not been waived or has not expired by reason of lapse of time following notification of the Company's intent to file the registration statement to be filed by it pursuant to the Rights Agreement (the "REGISTRATION STATEMENT")) to require the Company to register the sale of any shares owned by such stockholder under the Securities Act of 1933, as amended (the "SECURITIES ACT") in the Registration Statement. No further approval or authority of the stockholders or the Board of Directors of the Company will be required for the issuance and sale of the Securities to be sold by the Company as contemplated herein.

3.4 Due Execution, Delivery and Performance of this Agreement. The Company has full legal right, corporate power and authority to enter into the Transaction Documents and consummate the transactions contemplated hereby and thereby. The Transaction Documents have been duly authorized, executed and delivered by the Company. The execution and delivery of the Transaction Documents by the Company and the consummation by the Company of the transactions contemplated herein and therein: (i) will not violate any provision of the

certificate of incorporation or bylaws of the Company, (ii) will not result in the creation of any lien, charge, security interest or encumbrance upon any assets of the Company pursuant to the terms or provisions of, and will not conflict with, result in the breach or violation of, or constitute, either by itself or upon notice or the passage of time or both, a default under any agreement, lease, franchise, license, permit or other instrument to which the Company is a party or by which the Company or any of its properties are bound, except, in each case, for any lien, charge, security interest, encumbrance, conflict, breach, violation or default which would not reasonably be expected to have a Material Adverse Effect, or (iii) conflict with or result in the violation of any statute or any judgment, decree, order, rule or regulation of any court or any regulatory body, administrative agency or other governmental body applicable to the Company or any of its properties except for any such conflict or violation which would not reasonably be expected to have a Material Adverse Effect. No consent, approval, authorization or other order of any court, regulatory body, administrative agency or other governmental body is required for the execution and delivery by the Company of the Transaction Documents or the consummation by the Company of the transactions contemplated by the Transaction Documents, except for compliance with the blue sky laws and federal securities laws, the listing of the Shares and the Warrant Shares on the American Stock Exchange and the filing of the Registration Statement. Upon the execution and delivery of the Transaction Documents, and assuming the valid execution thereof by the Purchasers, each Transaction Document will constitute a valid and binding obligation of the Company, enforceable against it in accordance with its terms, except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting creditors' and contracting parties' rights generally and except as enforceability may be subject to general principles of equity (regardless of whether such enforceability is considered in

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a proceeding in equity or at law) and except to the extent enforcement of the indemnification obligations of the Company set forth in the Rights Agreement may be limited by federal or state securities laws or the public policy underlying such laws.

3.5 Accountants. The firm of Ernst & Young LLP, which has expressed its opinion with respect to the financial statements to be included or incorporated by reference in the Registration Statement and the prospectus which forms a part thereof (the "PROSPECTUS"), is an independent accountant as required by the Securities Act and the rules and regulations promulgated thereunder (the "RULES AND REGULATIONS").

3.6 No Defaults. The Company is not in violation or default of any provision of its certificate of incorporation or bylaws, or in breach of or default with respect to any provision of any agreement, judgment, decree, order, lease, franchise, license, permit or other instrument to which it is a party or by which it or any of its properties are bound except for any violation or default that would not reasonably be expected to have a Material Adverse Effect.

3.7 Contracts. There is no material contract or agreement required by the Exchange Act and the rules and regulations promulgated thereunder to be described in or filed as an exhibit to the Company's Annual Report on Form 10-K for the year ended December 31, 2004 or any other document that the Company was required to file with the Commission since December 31, 2004 pursuant to the reporting requirements of the Exchange Act which is not described or filed therein as required. Any contracts filed as exhibits to the Exchange Act Reports that are material to the Company are in full force and effect on the date hereof.

3.8 No Actions. Except as disclosed in the Exchange Act Reports, (1) there are no legal or governmental actions, suits or proceedings pending and (2) to the Company's knowledge, there are no inquiries or investigations pending, or any legal or governmental actions, suits, or proceedings threatened, against the Company or of which property owned or leased by the Company is or may be the subject (it being understood that the interaction between the Company and the United States Food and Drug Administration and such comparable governmental bodies relating solely to the clinical development and product approval process shall not be deemed proceedings for purposes of this representation), or related to environmental or discrimination matters, which actions, suits or proceedings, individually or in the aggregate, would reasonably be expected to have a

Material Adverse Effect; and no labor disturbance by the employees of the Company exists or, to the Company's knowledge, is imminent which would reasonably be expected to have a Material Adverse Effect. The Company is not party to or subject to the provisions of any injunction, judgment, decree or order of any court, regulatory body, administrative agency or other governmental body specifically naming the Company that would reasonably be expected to have a Material Adverse Effect.

3.9 Properties. The Company has good and marketable title to all properties and assets that are material to the business and reflected as owned as of September 30, 2005 in the financial statements included in the Exchange Act Reports or notes thereto, except those properties and assets that have been assigned or disposed of in the normal course of business. None of such properties or assets are subject to any lien, mortgage, pledge, charge or encumbrance of any kind, except for (i) those, if any, reflected in the financial statements included in the Exchange Act Reports, (ii) licenses of the Company's intellectual property

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entered into in the ordinary course of business or (iii) those which are not material in amount and do not materially adversely affect the use of such property or assets by the Company. The Company holds its leased properties under valid and binding leases, with such exceptions as would not reasonably be expected to have a Material Adverse Effect.

3.10 No Material Change. Since December 31, 2005, and except as described in the Exchange Act Reports:

(A) the Company has not incurred any material liabilities or obligations, indirect, or contingent, or entered into any material oral or written agreement or other transaction, which was not incurred or entered into in the ordinary course of business other than the Biotech Shares Agreement and the placement agent agreement with Youssef El-Zein;

(B) the Company has not sustained any material loss or interference with its business or properties from fire, flood, windstorm, accident or other calamity not covered by insurance;

(C) the Company has not paid or declared any dividends or other distributions with respect to its capital stock and the Company is not in default in the payment of principal or interest on any outstanding debt obligations;

(D) there has not been any material change or amendment to a contract filed as an exhibit to an Exchange Act Report that is material to the Company;

(E) there has not been any sale, assignment or transfer of all or substantially all of the Company's rights in any patents, trademarks, copyrights, trade secrets or other intangible assets or other material assets, except a sale, assignment or transfer made in the ordinary course of business that is not material to the assets, properties, financial condition, operating results or business of the Company;

(F) there has not been any resignation or termination of any officer, key employee or group of employees of the Company other than the Vice President of Clinical of the Company; and the Company, to its knowledge, does not know of the impending resignation or termination of employment of any such officer, key employee or group of employees;

(G) there has not been any waiver by the Company of a material debt owed to it;

(H) there has not been any material change in any compensation arrangement or agreement with any officer or director;

(I) there has not been any agreement or commitment by the Company to do any of the acts described in subsections (a) through (h) above; and

(J) there has not been any event which has caused a Material Adverse Effect other than continued incurrence of operating losses incurred in the ordinary course of the Company's business at a rate consistent with the

Company's rate of operating losses for the

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quarter ended December 31, 2005 as reflected in the Company's Financial Statements (as defined below).

3.11 Intellectual Property. Except as disclosed in the Exchange Act Reports, (i) the Company owns or has the right to use the inventions, patent applications, patents, trademarks (both registered and unregistered), trade names, copyrights and trade secrets used by it in or, to its knowledge, necessary for the conduct of the Company's business, including the development and commercialization of products currently under development in the Company's IMO-2055 program, including IMOXine and any follow compounds, IMO-2125 program (and any follow-on compounds to 2125) and toll-like receptor antagonist program (collectively, the "COMPANY INTELLECTUAL PROPERTY"), except where such failure to own or have the right to use the intellectual property would not reasonably be expected to have a Material Adverse Effect; and (ii) (a) to the Company's knowledge, there are no third parties who have any ownership rights to any Company Intellectual Property that would preclude the Company from conducting its business as currently conducted and have a Material Adverse Effect, except for the ownership rights of the owners of the Company Intellectual Property licensed by the Company; (b) to the Company's knowledge, there are currently no sales of any products or any other uses that would constitute an infringement by third parties of any Company Intellectual Property, which infringement would reasonably be expected to have a Material Adverse Effect; (c) there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others challenging the rights of the Company in or to any Company Intellectual Property, which action, suit, proceeding or claim would reasonably be expected to have a Material Adverse Effect; (d) there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others challenging the validity or scope of any Company Intellectual Property, which action, suit, proceeding or claim would reasonably be expected to have a Material Adverse Effect; and (e) there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others that the Company infringes or otherwise violates any patent, trademark, copyright, trade secret or other proprietary right (an "INTELLECTUAL PROPERTY RIGHT") of others, which action, suit, proceeding or claim would reasonably be expected to have a Material Adverse Effect. To the knowledge of the Company, the Company does not infringe nor is it in conflict with any Intellectual Property Rights of any other person. The termination of the Company's ownership of, or right to use, any single patent of Company Intellectual Property would not result in a Material Adverse Effect. The Company has not entered into any consent agreements, forbearance to sue or settlement agreements with respect to the validity of the Company's ownership or right to use Company Intellectual Property. To the Company's knowledge, the Company Intellectual Property is valid and enforceable. No registration relating to Company Intellectual Property has lapsed, expired or been abandoned or canceled or is the subject of cancellation or other adversarial proceedings, and all applications therefor are pending and in good standing. The Company has complied, in all material respects, with its contractual obligations relating to the protection of the Company Intellectual Property used pursuant to licenses. All former or current employees, officers and consultants of the Company have entered into agreements with the Company providing for the assignment of inventions to the Company, except where the failure to have entered into an agreement with an employee, officer or consultant would not reasonably be expected to have a Material Adverse Effect.

3.12 Compliance. The Company is conducting its business in compliance with all applicable laws, rules and regulations of the jurisdictions in which it is conducting its business,

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including, without limitation, all applicable local, state and federal environmental laws and regulations; except where failure to be so in compliance would not reasonably be expected to have a Material Adverse Effect.

3.13 Transfer Taxes. On the Closing Date, all stock transfer or other taxes (other than income taxes) which are required to be paid in connection with the

issuance and sale of the Shares to be sold to the Purchasers hereunder will be, or will have been, fully paid or provided for by the Company and all laws imposing such taxes will be or will have been complied with.

3.14 Investment Company. The Company is not an "investment company" or an "affiliated person" of, or "promoter" or "principal underwriter" for an investment company, within the meaning of the Investment Company Act of 1940, as amended.

3.15 Insurance. The Company carries, or is covered by, insurance of the types and in the amounts that the Company reasonably believes are adequate for its business as currently conducted and as is customary for similarly sized companies engaged in similar businesses in similar industries.

3.16 Disclosure. Neither this Agreement nor any exhibit hereto nor any certificates, instruments or other documents delivered by the Company to the Purchasers in connection with the purchase and sale of the Securities (other than any documents delivered by the Company describing the Company's clinical development plans and associated budget), when read together, contains any untrue statement of a material fact. The information contained in the following documents did not, as of the date of the applicable document, include any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances in which they were made, not misleading, as of their respective dates:

(A) the Company's Annual Report on Form 10-K for the year ended December 31, 2004;

(B) the Company's Quarterly Reports on Form 10-Q for the quarters ended March 31, 2005, June 30, 2005 and September 30, 2005; and

(C) all other documents, if any, filed by the Company with the Commission since March 25, 2005 pursuant to the reporting requirements of the Exchange Act (together with paragraphs (a) and (b), the "EXCHANGE ACT REPORTS").

3.17 Price of Common Stock. The Company has not taken, and will not take, directly or indirectly, any action designed to cause or result in, or which has constituted or which might reasonably be expected to constitute, the stabilization or manipulation of the price of the shares of the Common Stock to facilitate the sale or resale of the Securities.

3.18 Reporting Company; Form S-3. The Company is subject to the reporting requirements of the Exchange Act and since December 31, 2004 has timely filed all reports required thereby. As of their respective filing dates, all Exchange Act Reports complied in all material respects with the requirements of the Exchange Act. The Company is eligible to register the Shares and the Warrant Shares for resale by the Purchaser on a registration statement

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on Form S-3 under the Securities Act. To the Company's knowledge, there exist no facts or circumstances that would prohibit or delay the preparation and filing of a registration statement on Form S-3 with respect to the Registrable Securities (as defined in the Rights Agreement). The Company does not know of any basis to believe that its present independent public auditors will withhold their consent to the inclusion, or incorporation by reference, of their audit opinion concerning the Company's financial statements that will be included in the Registration Statement.

3.19 Use of Proceeds. The Company intends to use the proceeds from the sale of the Securities for research and clinical development activities, manufacturing and commercialization of its product candidates, working capital and general corporate purposes, including for potential acquisitions of additional technologies and intellectual property rights.

3.20 Use of Purchaser Name. Except as may be required by applicable law or regulation and as may be required in the Registration Statement, the Company shall not use any Purchaser's name or the name of any of its affiliates in any advertisement, announcement, press release or other similar public communication in connection with the offering of the Securities contemplated hereby unless it has received the prior written consent of such Purchaser for the specific use

contemplated or as otherwise required by applicable law or regulation.

3.21 Related Party Transactions. No transaction has occurred between or among the Company and its affiliates, officers or directors or any affiliate or affiliates of any such officer or director that is required to have been described in the Exchange Act Reports under Item 404 of Regulation S-K as required by the Exchange Act or otherwise and is not so described in the Exchange Act Reports.

3.22 Governmental Permits, Etc. The Company has all franchises, licenses, certificates and other authorizations from such federal, state or local government or governmental agency, department or body that are currently required for the operation of the business of the Company as currently conducted, except where the failure to possess currently such franchises, licenses, certificates and other authorizations would not reasonably be expected to have a Material Adverse Effect. The Company has not received any notice of proceedings relating to the revocation or modification of any such permit.

3.23 Financial Statements. The consolidated financial statements of the Company and the related notes contained in the Exchange Act Reports and the consolidated financial statements of the Company and the related notes for the period ended December 31, 2005, which have been delivered to the Purchasers, (collectively, the "FINANCIAL STATEMENTS") present fairly, in accordance with United States generally accepted accounting principles ("GAAP"), the consolidated financial position of the Company as of the dates indicated, and the results of operations and cash flows for the periods therein specified, subject, in the case of unaudited financial statements for interim periods, to normal year-end audit adjustments. The Financial Statements (including the related notes) have been prepared in accordance with GAAP applied on a consistent basis throughout the periods therein specified, except that unaudited financial statements are subject to normal year-end audit adjustments and may not contain all footnotes required by GAAP. Since December 31, 2005, the Company has not incurred liabilities,

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contingent or otherwise in the ordinary course of business which individually or in the aggregate, are material to the financial condition or operating results of the Company.

3.24 Listing. The Common Stock is presently listed on the American Stock Exchange. The Company has not, in the two years preceding the date hereof, received any written notice from the American Stock Exchange to the effect that the Company is not in compliance with the maintenance requirements of such exchange. The Company has secured or prior to closing will secure the listing of the Shares and the Warrant Shares upon each national securities exchange or automated quotation system upon which shares of Common Stock are currently listed (subject to official notice of issuance).

3.25 Sarbanes-Oxley Act; Accounting Controls. The Company is in compliance in all material respects with all provisions of the Sarbanes-Oxley Act of 2002 which are applicable to it. The Company maintains a system of internal accounting controls that the Company reasonably believes is sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management's general or specific authorization; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

3.26 ERISA Compliance. Each employee benefit plan, within the meaning of Section 3(3) of the Employee Retirement Income Security Act of 1974, as amended ("ERISA"), that is maintained, administered or contributed to by the Company or any entity that is considered a "single employer" with the Company in accordance with Section 414 of the Internal Revenue Code of 1986, as amended (the "CODE"), for employees or former employees of the Company has been maintained in all material respects in compliance with its terms (except that in any case in which any plan is currently required to comply with a provision of ERISA or of the Code, but is not yet required to be amended to reflect such provision, it has

been maintained, operated and administered in accordance with such provision) and the requirements of any applicable statutes, orders, rules and regulations, including but not limited to ERISA and the Code; no prohibited transaction, within the meaning of Section 406 of ERISA or Section 4975 of the Code, has occurred which would result in a material liability to the Company with respect to any such plan excluding transactions effected pursuant to a statutory or administrative exemption; and for each such plan that is subject to the funding rules of Section 412 of the Code or Section 302 of ERISA, no "accumulated funding deficiency" as defined in Section 412 of the Code has been incurred, whether or not waived, and the fair market value of the assets of each such plan (excluding for these purposes accrued but unpaid contributions) exceeds the present value of all benefits accrued under such plan determined using reasonable actuarial assumptions.

3.27 Foreign Corrupt Practices. Neither the Company, nor, to the knowledge of the Company, any director, officer, agent, employee or other Person acting on behalf of the Company has, in the course of its actions for, or on behalf of, the Company (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expenses relating to political activity; (ii) made any direct or indirect unlawful payment to any foreign or domestic government official or employee from corporate funds; (iii) violated or is in violation

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of any provision of the U.S. Foreign Corrupt Practices Act of 1977, as amended; or (iv) made any unlawful bribe, rebate, payoff, influence payment, kickback or other unlawful payment to any foreign or domestic government official or employee.

3.28 Employee Relations. The Company is not a party to any collective bargaining agreement and does not employ any member of a union. No executive officer of the Company (as defined in Rule 501(f) of the Securities Act) has notified the Company that such officer intends to leave the Company or otherwise terminate such officer's employment with the Company. No executive officer of the Company, to the knowledge of the Company, is in violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement, non-competition agreement, or any other contract or agreement or any restrictive covenant with the Company, and, to the knowledge of the Company, the continued employment of each such executive officer does not subject the Company to any liability with respect to any of the foregoing matters. To the Company's knowledge, no employee, officer or consultant of the Company is in violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement, non-competition agreement, or any other contract or agreement or any restrictive covenant. Except as set forth in the Exchange Act Reports, no employee of the Company has been granted the right to any severance following termination of employment with the Company in excess of \$200,000.

3.29 Securities Law Exemptions. Assuming the accuracy of the representations and warranties of the Purchasers contained in Section 4 hereof, the offer, sale and issuance of the Securities are exempt from the registration requirements of the Securities Act, and the registration, permit or qualification requirements of any applicable state securities laws. Neither the Company nor any person acting on its behalf has taken any action to sell, offer for sale or solicit offers to buy any securities of the Company that would reasonably be expected to subject the offer, issuance or sale of the Securities, as contemplated by this Agreement, to the registration requirements of Section 5 of the Securities Act.

3.30 No Integrated Offering. Neither the Company, nor any of its affiliates, nor any person acting on its or their behalf, has directly or indirectly made any offers or sales of any security or solicited any offers to buy any security under circumstances that would cause this offering of Securities to be integrated with any prior or contemporaneous offering of securities of the Company for purposes of the Securities Act or any applicable state securities law or any applicable stockholder approval provisions.

3.31 No Brokers. The Company has taken no action which would give rise to any claim by any person for brokerage commissions, finder's fees or similar payments by any Purchaser relating to this Agreement or the transactions contemplated hereby other than fees owed to ThinkEquity.

ARTICLE 4

REPRESENTATIONS AND WARRANTIES OF PURCHASER

Each Purchaser hereby represents and warrants as follows:

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4.1 This Agreement and the Rights Agreement have been duly and validly authorized, executed and delivered on behalf of such Purchaser and are valid and binding agreements of such Purchaser enforceable against such Purchaser in accordance with their terms except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting creditors' and contracting parties' rights generally and except as enforceability may be subject to general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law) and except to the extent enforcement of the Purchaser's indemnification obligations set forth in the Rights Agreement may be limited by federal or state securities laws or the public policy underlying such laws.

4.2 The Purchaser represents and warrants to, and covenants with, the Company that: (i) the Purchaser is knowledgeable, sophisticated and experienced in making, and is qualified to make, decisions with respect to investments in securities representing an investment decision like that involved in the purchase of the Securities, including investments in securities issued by the Company and comparable entities, and has had the opportunity to request, receive, review and consider all information it deems relevant in making an informed decision to purchase the Securities; (ii) the Purchaser is acquiring the Securities set forth in Section 1 above in the ordinary course of its business and for its own account for investment only and with no present intention of distributing any of such Securities or any arrangement or understanding with any other persons regarding the distribution of such Securities (this representation and warranty not limiting the Purchaser's right to sell pursuant to the Registration Statement or in compliance with the Securities Act and the Rules and Regulations, or the Purchaser's right to indemnification under the Rights Agreement); (iii) the Purchaser has not been organized, reorganized or recapitalized specifically for the purpose of investing in the Securities; (iv) the Purchaser has completed or caused to be completed the Registration Statement Questionnaire attached hereto as part of Exhibit D, for use in preparation of the Registration Statement, and the answers thereto are true and correct as of the date hereof and will be true and correct as of the effective date of the Registration Statement and the Purchaser will notify the Company promptly of any material change in any such information provided in the Registration Statement Questionnaire until such time as the Purchaser has sold all of its Securities or until the Company is no longer required to keep the Registration Statement effective; (v) the Purchaser has had an opportunity to discuss this investment with representatives of the Company and ask questions of them; (vi) the Purchaser is an "accredited investor" within the meaning of Rule 501(a) of Regulation D promulgated under the Securities Act; (vii) the Purchaser agrees to notify the Company promptly of any change in any of the foregoing information until such time as the Purchaser has sold all of its Securities or the Company is no longer required to keep the Registration Statement effective; and (viii) the Purchaser will not, directly or indirectly, offer, sell, pledge, transfer or otherwise dispose of (or solicit any offers to buy, purchase or otherwise acquire to take a pledge of) any of the Shares except in compliance with the Securities Act, the Rules and Regulations, and applicable state securities laws.

4.3 The Purchaser understands that the Securities are being offered and sold to it in reliance upon specific exemptions from the registration requirements of the Securities Act, the Rules and Regulations and state securities laws and that the Company is relying upon the truth and accuracy of, and the Purchaser's compliance with, the representations, warranties, agreements, acknowledgments and understandings of the Purchaser set forth herein in order to

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determine the availability of such exemptions and the eligibility of the Purchaser to acquire the Securities.

4.4 The Purchaser understands that its investment in the Securities involves a significant degree of risk, including a risk of total loss of the Purchaser's investment, and the Purchaser has full cognizance of and understands all of the risk factors related to the Purchaser's purchase of the Securities. The Purchaser understands that the market price of the Common Stock has been volatile and that no representation is being made as to the future value of the Common Stock. The Purchaser has the knowledge and experience in financial and business matters as to be capable of evaluating the merits and risks of an investment in the Securities and has the ability to bear the economic risks of an investment in the Securities.

4.5 The Purchaser understands that no United States federal or state agency or any other government or governmental agency has passed upon or made any recommendation or endorsement of the Securities.

4.6 The Purchaser's principal executive offices are at the address set forth below the Purchaser's name on the Schedule of Purchasers.

4.7 The Purchaser further represents and warrants to, and covenants with, the Company that (i) the Purchaser is in compliance with Executive Order 13224 and the regulations administered by the U.S. Department of the Treasury ("TREASURY") Office of Foreign Assets Control, (ii) the Purchaser, its parents, subsidiaries, affiliated companies, officers, directors and partners, and to the Purchaser's knowledge, its shareholders, owners, employees, and agents, are not on the List of Specially Designated Nationals and Blocked Persons maintained by Treasury and have not been designated by Treasury as a financial institution of primary money laundering concern, (iii) to the Purchaser's knowledge after reasonable investigation, all of the funds to be used to acquire the Securities are derived from legitimate sources and are not the product of illegal activities, and (iv) the Purchaser is in compliance with all other applicable U.S. anti-money laundering laws and regulations and has implemented, if applicable, an anti-money laundering compliance program in accordance with the requirements of the Bank Secrecy Act, as amended by the USA PATRIOT Act, Pub. L. 107-56.

4.8 Except for Section 3.29, nothing in this Section 4 shall lessen or obviate the representations and warranties of the Company set forth in this Agreement.

ARTICLE 5

COVENANTS

5.1 Form D: Blue Sky Laws. The Company shall file with the SEC a Form D with respect to the Securities as required under Regulation D and provide a copy thereof to each Purchaser promptly after such filing. The Company shall, on or before the Closing Date, take such action as the Company shall reasonably determine is necessary to qualify the Securities for sale to each Purchaser pursuant to this Agreement under applicable securities or "blue sky" laws of the states of the United States or obtain exemption therefrom, and shall provide evidence of any such action so taken to each Purchaser promptly after taking such action. Within two (2)

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trading days after the Closing Date, the Company shall file a Form 8-K concerning this Agreement and the transactions contemplated hereby, which Form 8-K shall attach this Agreement, the Rights Agreement and the form of Warrant as exhibits to such Form 8-K.

5.2 Reporting Status. So long as any Purchaser beneficially owns any of the Securities and so long as the Company is subject to the periodic reporting obligations of the Exchange Act, the Company shall timely file (within applicable extension periods) all reports required to be filed with the SEC pursuant to the Exchange Act.

5.3 Participation Right.

(A) In the event that prior to the earlier of (i) March 23, 2008 and

(ii) the date that the Purchasers collectively own fewer than 11,079,545 shares of Common Stock (such number of shares being subject to adjustment for stock splits, dividends, combinations, recapitalizations, reclassifications and other similar events), the Company proposes to sell and issue securities of the Company (an "ADDITIONAL FINANCING") each Purchaser shall have the option to purchase, on the same terms and conditions offered by the Company to the other purchasers of such securities in such Additional Financing, up to that percentage of the securities sold in such Additional Financing equal to (x) the proportion that the number of Shares then held by such Purchaser bears to the total number of Shares then held by all Purchasers, multiplied by (y) the aggregate percentage set forth in Section 5.3(e) hereof with respect to such Additional Financing (such percentage being a Purchaser's "PRO RATA AMOUNT").

(B) No later than 10 business days prior to the anticipated closing of any such proposed Additional Financing, the Company shall deliver a written notice (the "OFFER NOTICE") to the Purchasers stating (i) its bona fide intention to offer securities in an Additional Financing, (ii) the number of such securities to be offered, (iii) the price and terms, to the extent known, upon which it proposes to offer such securities, and (iv) the anticipated closing date of the sale of such securities. The Company shall promptly notify each Purchaser of (i) the determination of the price and terms upon which it proposes to offer such securities, to the extent not set forth in the Offer Notice, and (ii) any material change in any of the information set forth in the Offer Notice or in the price or other terms previously communicated to such Purchaser (it being understood that any change in the offering price, the number of shares to be offered and the warrant coverage and warrant exercise price of any warrants issued in such Additional Financing, shall be deemed to be material, regardless of magnitude).

(C) In order to participate in the Additional Financing, in whole or in part, a Purchaser must deliver to the Company, on or prior to the latest of (i) the date 10 business days after the date of delivery of the Offer Notice (the "Offer Notice Expiration Date"), (ii) the date one business day following the date on which the final price and terms, to the extent not set forth in the Offer Notice, are communicated to such Purchaser and (iii) the date one business day following the date on which any change in any of the information set forth in the Offer Notice or in the price or any other term of the Additional Financing is communicated to such Purchaser, a written notice of acceptance providing a representation letter certifying that such Purchaser is an accredited investor within the meaning of Rule 501 under the Securities Act and indicating the portion of the Purchaser's Pro Rata Amount that such Purchaser elects to purchase and, if such Purchaser shall elect to purchase all of its Pro Rata Amount, indicating the amount of securities

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not subscribed for by the other Purchasers hereunder (the "UNDERSUBSCRIPTION AMOUNT") that such Purchaser elects to purchase. If the Pro Rata Amounts subscribed for by all Purchasers are less than the total of all of the Pro Rata Amounts available for purchase, then each Purchaser who has set forth an Undersubscription Amount in its notice of acceptance shall be entitled to purchase, in addition to the Pro Rata Amounts subscribed for, the Undersubscription Amount it has subscribed for; provided, however, that if the Undersubscription Amounts subscribed for by the Purchasers exceed the available Undersubscription Amount, each Purchaser who has subscribed for any Undersubscription Amount shall be entitled to purchase only that portion of the available Undersubscription Amount as the Undersubscription Amount subscribed for by such Purchaser bears to the total Undersubscription Amounts subscribed for by all Purchasers, subject to rounding by the Board of Directors to the extent it deems reasonably necessary.

(D) The Company may conduct the Additional Financing, and in the event that all of the securities offered to the Purchasers in the Offer Notice are not purchased hereunder by the Purchasers include such unpurchased securities in the securities being sold in the Additional Financing, within 60 days of the Offer Notice Expiration Date on terms and conditions not more favorable to the purchasers in such Additional Financing than the terms and conditions offered to the Purchasers hereunder without first offering such securities to the Purchasers in the manner provided in this Section 5.3.

(E) The aggregate percentage of any Additional Financing that the Purchasers shall have the right to purchase under this Section 5.3 shall be

determined as follows:

(I) if the price at which the securities are sold in the Additional Financing is equal to or less than \$0.88 (as adjusted for any stock splits, stock dividends, recapitalization, reclassifications or otherwise), the Purchasers shall collectively be entitled to purchase up to 50% of the securities to be issued in such Additional Financing;

(II) if the price at which the securities are sold in the Additional Financing is greater than \$0.88 (as adjusted for any stock splits, stock dividends, combinations, recapitalization, reclassifications or otherwise) and equal to or less than \$1.32 (as adjusted for any stock splits, recapitalization, reclassifications or otherwise), the Purchasers shall collectively be entitled to purchase up to 40% of the securities to be issued in such Additional Financing;

(III) if the price at which the securities are sold in the Additional Financing is greater than \$1.32 (as adjusted for any stock splits, stock dividends, combinations, recapitalization, reclassifications or otherwise) and equal to or less than \$1.76 (as adjusted for any stock splits, recapitalization, reclassifications or otherwise), the Purchasers shall collectively be entitled to purchase up to 30% of the securities to be issued in such Additional Financing; and

(IV) if the price at which the securities are sold in the Additional Financing is greater than \$1.76 (as adjusted for any stock splits, stock dividends, combinations, recapitalization, reclassifications or otherwise), the Purchasers shall collectively be entitled to purchase up to 20% of the securities to be issued in such Additional Financing.

For purposes of this clause (e), the price at which the securities are sold is intended to reflect the price at which a share of Common Stock is sold in the Additional Financing or the

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price of which a unit of securities that includes one share of Common Stock is sold. In the event that the Additional Financing is of securities convertible into or exercisable for Common Stock or of a unit of securities that includes securities convertible into or exercisable for Common Stock, then the price at which the securities shall be deemed to be sold for purposes of this clause (e) shall be determined on a fully-exercised, as-converted to Common Stock basis. In the event that the Additional Financing is of securities not convertible into or exercisable for Common Stock, the Purchasers shall collectively be entitled to purchase up to 50% of the securities to be issued in such Additional Financing.

(F) In the event that the Company proposes an Additional Financing that is a public offering made pursuant to a registration statement filed with the Commission pursuant to the Securities Act, the offering of securities to the Purchasers pursuant to this Section 5.3 shall be made by the Company in a concurrent private placement and not in such public offering. In any such private placement: (i) the offer of the securities in such private placement shall be made on the same terms and conditions as the offer of the securities in the public offering, (ii) the closing of the private placement shall occur concurrently with the closing of the Additional Financing, (iii) the securities offered to the Purchasers in the private placement shall be deemed to have been issued in such Additional Financing for the purpose of calculating the percentages set forth in Section 5.3(e), and (iv) the Company shall provide registration rights substantially identical to those provided in the Rights Agreement with respect to the securities purchased in the private placement.

(G) The following issuances shall not be Additional Financings for purposes of this Section 5.3 and the Purchasers shall have no rights hereunder with respect to such issuances of securities: (i) the issuance or sale of shares of Common Stock (or options therefor) to employees, officers, directors, consultants or advisers of the Company pursuant to any plan, agreement or arrangement approved by the Company's Board of Directors (the primary purpose of which, in the reasonable judgment of the Company's Board of Directors, is not to raise additional capital); (ii) the issuance of securities in connection with mergers, acquisitions, strategic business partnerships, joint ventures or research and development, licensing or similar collaborations or arrangements; (iii) securities issued upon exercise or conversion of outstanding securities of

the Company; (iv) securities issued to placement agents; (v) securities issued as payments of interest on notes of the Company; (vi) securities issued as a stock dividend to holders of Common Stock or upon any subdivision or combination of shares of Common Stock; and (vii) shares of Common Stock, or the grant of options or warrants therefor, in connection with any present or future borrowing, leasing or similar debt financing arrangement (including any line of credit extended by any commercial lending institution and evidenced by the issuance of notes by the Company) approved by the Board of Directors of the Company.

(H) The participation right in this Section 5.3 shall terminate upon the earlier of (i) the closing of any Additional Financing in which the Company issues securities in a single closing for aggregate consideration exceeding \$50 million and (ii) the closing of any Additional Financing in which the Company issues securities for aggregate consideration that, when added together with the consideration received by the Company for all Additional Financings prior to such Additional Financing, exceeds \$75 million.

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(I) The participation right in this Section 5.3 may not be assigned or transferred, except that such right is assignable by each Purchaser to any wholly owned subsidiary or parent of, or to any corporation or entity that is, within the meaning of the Securities Act, controlling, controlled by or under common control with, any such Purchaser.

(J) No Purchaser shall have any right to purchase securities of the Company hereunder, and the Company shall have no obligation to a Purchaser hereunder, if (1) the Company has used its reasonable best efforts to ensure that the sale of such securities to such Purchaser will not violate any Rule or Regulation and, despite such efforts, the Company reasonably determines in good faith (based on the written advice of its counsel) that the sale of such securities to such Purchaser cannot be made without the violation of any Rule or Regulation or (2) (A) the Company reasonably determines in good faith (based on the written advice of its counsel) that the sale of such securities to such Purchaser cannot be made without requiring the approval of the Company's stockholders for a reason that is related to such Purchaser (or to the Purchasers as a group) and is not related to the participation of other participants in the Additional Financing and (B) the Company has used commercially reasonable efforts (which shall include consulting in good faith with the participants in the Additional Financing other than the Purchasers) to structure the Additional Transaction such that that the sale of such securities to such Purchaser can be made without requiring the approval of the Company's stockholders; provided, however, the Company shall negotiate in good faith with such Purchaser to implement a mutually-agreeable alternative to such Purchaser's participation in such Additional Financing on the same terms as the other participants with the goal of providing such Purchaser with the opportunity to purchase securities of the Company on or about the time of the Additional Financing on terms that are economically equivalent to the terms offered to the participants in the Additional Financing.

5.4 Expenses. The Company shall pay to Baker Brothers Investments ("BBI") at the Closing upon delivery to the Company of an invoice, reimbursement for the out-of-pocket expenses reasonably incurred by BBI or its advisors in connection with the negotiation, preparation, execution and delivery of the Transaction Documents and the other agreements to be executed in connection herewith, and therewith, including, without limitation, reasonable due diligence and attorneys' fees and expenses (the "EXPENSES"); provided, however, that BBI shall be permitted to deduct all Expenses from the purchase price payable by BBI and purchasers affiliated with BBI hereunder. In addition, from time to time following the Closing, upon BBI's written request and delivery to the Company of an invoice, the Company shall pay to BBI such additional Expenses, if any, not covered by any payments made at Closing. The maximum amount of Expenses for which the Company shall be responsible pursuant to this section shall be \$50,000 and the balance of the expenses of BBI and the other Purchasers shall be borne by BBI and the other Purchasers.

5.5 Information. The Company shall send the following to each Purchaser until such Purchaser transfers, assigns or sells all of its Securities: (i) unless otherwise available on the SEC's EDGAR system, within ten (10) days after the filing with the SEC, a copy of its Annual Report on Form 10-K, its Quarterly Reports on Form 10-Q, its proxy statements and any Current Reports on Form 8-K; and (ii) within one day of the release, copies of all press releases issued by

the Company.

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5.6 Listing. The Company will use its best efforts to continue the listing and trading of its Common Stock, including the Shares and Warrant Shares, on the American Stock Exchange ("AMEX"), the New York Stock Exchange, the Nasdaq National Market, the Nasdaq Capital Market or other equivalent U.S. national exchange or automated trading market (a "PERMITTED EXCHANGE") and to comply with the reporting, filing and other obligations under the bylaws or rules thereof.

5.7 Corporate Existence. So long as a Purchaser owns any Securities, in the event of a merger, consolidation or sale of all or substantially all of the Company's assets, the Company shall ensure that the surviving or successor entity in such transaction assumes the Company's obligations hereunder and under the Warrants and the agreements and instruments entered into in connection herewith regardless of whether or not the Company would have had a sufficient number of shares of Common Stock authorized and available for issuance upon exercise of all Warrants outstanding as of the date of such transaction. The Company covenants and agrees that it will not engage in any liquidation, dissolution, merger, consolidation or sale of all or substantially all of its assets at any time prior to the effectiveness of the Registration Statement required to be filed pursuant to the Rights Agreement without (A) providing each Purchaser with written notice of such transaction at least 15 days prior to the consummation of such transaction and (B) obtaining the written consent (such consent not to be unreasonably withheld) of the Purchasers holding a majority-in-interest of the then outstanding Shares held by the Purchasers; provided, however, that the Company shall not have any obligation hereunder to obtain such consent if the Board of Directors of the Company determines in good faith (based on the written advice of counsel) that requiring such consent would be inconsistent with its fiduciary duties under applicable law.

5.8 Securities Laws; No Integrated Offerings. The Company shall not make any offers or sales of any security under circumstances that would cause the offer and sale of the Securities hereunder to violate the Securities Act or the Rules or Regulations or cause the offer and sale of the Securities to be subject to any stockholder approval provision applicable to the Company or its securities.

5.9 Legal Compliance. So long as any Purchaser beneficially owns at least 5% of the Company's common stock (determined in accordance with Rule 13(d) under the Exchange Act), the Company shall conduct its business and the business of its subsidiaries in compliance with all laws, ordinances or regulations of governmental entities applicable to such businesses, except where the failure to do so would not have a Material Adverse Effect.

5.10 Inspection of Properties and Books. So long as BBI beneficially owns at least 10% of the Company's common stock (determined in accordance with Rule 13(d) under the Exchange Act), BBI and its representatives and agents (collectively, the "INSPECTORS") shall have the right, at BBI's expense, and following reasonable notice to visit and inspect any of the properties of the Company, to examine the books of account and records of the Company and, to discuss the affairs, finances and accounts of the Company with, and to be advised as to the same by, its officers, all at such reasonable times and intervals and to such reasonable extent as BBI may desire. The Company shall not disclose material nonpublic information to Inspectors, unless prior to disclosure of such information the Company and BBI agree otherwise and the

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Inspectors enter into an appropriate confidentiality agreement with the Company with respect thereto.

5.11 Board of Directors. At any time and from time to time until March 23, 2007 (the "EXPIRATION DATE"), BBI will have the right to recommend one representative or appointee of BBI (the "BBI CANDIDATE") for election to the Company's Board of Directors. If the BBI Candidate is determined to be a suitable candidate to serve as a director of the Company by the Company's nominating committee acting in good faith in accordance with the guidelines

publicly disclosed by the Company and the charter of the nominating committee, the Company will cause such BBI Candidate to be elected or appointed as a member of the Company's Board of Directors. If the BBI Candidate's term will expire prior to the Expiration Date, the Company will evaluate the BBI Candidate in the same manner as its other directors whose terms are expiring and, if the BBI Candidate is determined to be a suitable candidate to serve as a director of the Company by the Company's nominating committee acting in good faith in accordance with the guidelines publicly disclosed by the Company and the charter of the nominating committee, will nominate the BBI Candidate for re-election to the Board upon the expiration of such BBI Candidate's term. The right set forth in this Section 5.11 is not assignable.

5.12 Observation Rights. During any period when a BBI Candidate is serving as a member of the Board, the Company shall allow the BBI Candidate to attend, in a nonvoting capacity, all meetings of each committee of the Company's Board of Directors on which the BBI Candidate is not serving, and in connection therewith, the Company shall give such BBI Candidate copies of all notices, minutes, consents and other materials, financial or otherwise, which the Company provides to the members of such committee; provided, however, that the Company reserves the right to exclude such BBI Candidate from access to any material or meeting or portion thereof if the Company believes upon advice of counsel that such exclusion is reasonably necessary to preserve the attorney-client privilege, to protect highly confidential information or for other similar reasons, or if such committee believes in good faith (based on the advice of counsel) that the BBI Candidate has a conflict of interest. The right set forth in this Section 5.12 is not assignable.

5.13 Future Financings. On or prior to the earlier of (i) March 23, 2008, and (ii) the date on which the Purchasers no longer hold at least 50% of the Shares issued at the Closing (subject to adjustment for stock splits, dividends, combinations, recapitalizations, reclassifications and other similar events), the Company shall not sell any shares of preferred stock or consummate any debt financing without the prior written consent of Purchasers holding at least a majority of the Shares then held by all Purchasers; provided that no such approval shall be necessary for the Company to enter into an equipment lease transaction.

5.14 Use of Proceeds. The Company shall use the proceeds from the sale of the Securities for research and clinical development activities, manufacturing and commercialization of its product candidates, working capital and general corporate purposes, including for potential acquisitions of additional technologies and intellectual property rights.

5.15 No Short Sales. Each Purchaser agrees that beginning on the date hereof until the earlier to occur of (a) the date 90 days from the Closing Date and (b) the effective date of the Registration Statement, it will not enter into any Short Sales. For purposes of this Section 5.15, a

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"Short Sale" by a Purchaser means a sale of Common Stock that is marked as a short sale and that is executed at a time when such Purchaser has no equivalent offsetting long position in the Common Stock. For purposes of determining whether a Purchaser has an equivalent offsetting long position in the Common Stock, all Common Stock that would be issuable upon exercise in full of all options then held by such Purchaser (assuming that such options were then fully exercisable, notwithstanding any provisions to the contrary, and giving effect to any exercise price adjustments scheduled to take effect in the future) shall be deemed to be held long by such Purchaser.

ARTICLE 6

CONDITIONS TO PURCHASER'S OBLIGATIONS AT CLOSING

The obligations of each Purchaser under Section 2 of this Agreement are subject to the fulfillment or waiver by such Purchaser, on or before the Closing, of each of the following conditions:

6.1 Representations and Warranties True. Each of the representations and warranties of the Company contained in Section 3 shall have been true and correct when made and shall be true and correct on and as of the Closing Date with the same effect as though such representations and warranties had been made

on and as of the Closing Date (except for representations and warranties that speak as of a specific date, which representations and warranties shall be true and correct in all material respects as of such date).

6.2 Performance of Obligations; Consents and Waivers. 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 by it on or before the Closing Date and shall have obtained all approvals, consents and qualifications necessary to complete the purchase and sale described herein.

6.3 Transaction Documents. The Company shall have executed and delivered this Agreement, the Warrants and the Rights Agreement.

6.4 Delivery of Certificates and Warrants. The Company shall have delivered to such Purchaser duly executed stock certificates and Warrants (each in such denominations as such Purchaser shall request) representing the Shares and Warrants being so purchased by such Purchaser at the Closing in accordance with Section 2.1 above.

6.5 Authorization of Common Stock. The Common Stock shall be authorized for quotation and listed on the AMEX and trading in the Common Stock (or the AMEX generally) shall not have been suspended by the SEC or the AMEX.

6.6 Legal Opinion. Such Purchaser shall have received an opinion of the Company's counsel, dated as of the Closing Date, in form, scope and substance satisfactory to the Purchaser.

6.7 Compliance Certificate. The Company shall have delivered to the Purchaser a certificate dated as of the Closing Date, signed by the Company's Chief Executive or Chief

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Financial Officer, certifying that the conditions set forth in Sections 6.1, 6.2, 6.5 and 6.7 have been satisfied.

6.8 Officer's Certificate. The Purchaser shall have received from an officer of the Company, a certificate having attached thereto (i) the Certificate of Incorporation as in effect at the time of the Closing, (ii) the Company's Bylaws as in effect at the time of the Closing, (iii) resolutions approved by the Board of Directors authorizing the transactions contemplated hereby, and (iv) good standing certificates (including tax good standing) with respect to the Company from the applicable authority(ies) in Delaware and any other jurisdiction in which the Company is qualified to do business, dated a recent date before the Closing.

ARTICLE 7

CONDITIONS TO COMPANY'S OBLIGATIONS AT CLOSING

The Company's obligation to sell and issue the Shares is subject to the fulfillment of the following conditions, any of which may be waived by the Company:

7.1 Representations and Warranties. The representations and warranties made by the Purchaser in Section 4 hereof shall have been true and correct when made and shall be true and correct on such Closing Date as if made on and as of such Closing Date.

7.2 Securities Exemptions. The offer and sale of the Securities to the Purchaser pursuant to this Agreement shall be exempt from the registration requirements of the Securities Act, and the registration and/or qualification requirements of all other applicable securities laws.

ARTICLE 8

RESTRICTIONS ON TRANSFERABILITY OF SECURITIES

8.1 Restrictions on Transferability. The Securities shall not be sold, transferred, assigned or hypothecated unless (i) there is an effective registration statement under the Securities Act covering such Securities, (ii)

the sale is made in accordance with Rule 144 under the Securities Act, or (iii) the Company receives an opinion of counsel for the holder of the Securities reasonably satisfactory to the Company stating that such sale, transfer, assignment or hypothecation is exempt from the registration requirements of the Securities Act, and each such case upon all other conditions specified in this Section 8. Notwithstanding the provisions of the preceding sentence, no such registration statement or opinion of counsel shall be required for any transfer of any Securities by a Purchaser that is a partnership, a limited liability company or a corporation to (A) a partner of such partnership, a member of such limited liability company or a stockholder of such corporation, (B) an entity that controls, or is controlled by, or is under common control with such partnership, limited liability company or corporation, (C) a retired partner of such partnership or member of such limited liability company or (D) the estate of any such partner, member or stockholder; provided that in each of the foregoing cases the proposed transferee of the Securities held by the Purchaser agrees in writing to take and hold such Securities subject to the provisions and upon the conditions specified in this Section 8.

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8.2 Restrictive Legends. Each certificate representing the Securities, and any other securities issued in respect of the Securities upon any stock split, stock dividend, recapitalization, merger, consolidation or similar event (except as otherwise permitted by the provisions of this Section 8), shall be stamped or otherwise imprinted with a legend in substantially the following form:

"THE SECURITIES REPRESENTED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES OR IN ANY OTHER JURISDICTION. THE SECURITIES REPRESENTED HEREBY MAY NOT BE OFFERED, SOLD OR TRANSFERRED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT FOR THE SECURITIES UNDER APPLICABLE SECURITIES LAWS UNLESS OFFERED, SOLD OR TRANSFERRED PURSUANT TO AN AVAILABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THOSE LAWS."

8.3 Removal of Legend and Transfer Restrictions. Any legend endorsed on a certificate pursuant to subsection 8.2 and any stop transfer instructions with respect to such legended Securities shall be removed and the Company shall issue a certificate without such legend to the holder of such Securities, or the Company shall issue a certificate without any legend representing Securities issued upon the exercise of a Warrant, as the case may be, if (i) the resale of such Securities are registered under the Securities Act and a prospectus meeting the requirements of Section 10 of the Securities Act is available with respect to such Securities and (a) the Purchaser delivers to the Company an opinion by counsel, reasonably satisfactory to the Company, that a registration statement under the Securities Act is at that time in effect with respect to the resale of the legended security or that such security can be freely transferred in a public sale without such a registration statement being in effect and that such transfer will not eliminate the exemption or exemptions from registration pursuant to which the Company issued the Securities, or (b) in connection with a proposed transfer of the Securities, the Purchaser delivers to the Company a certificate executed by an officer of, or other person duly authorized by such Purchaser, in the form attached hereto as EXHIBIT E, (ii) if such holder sells the Security in accordance with the requirements of Rule 144 under the Securities Act, or (iii) the Security is eligible to be sold pursuant to Rule 144(k) under the Securities Act. If the Company is required to issue unlegended certificates pursuant to this Section 8.3 following the sale of some or all of the Securities evidenced by such certificates, the Company shall use its best efforts to deliver or cause to be delivered to such Purchaser such unlegended certificates within four (4) business days of submission by that Purchaser of legended certificate(s) to the Company's transfer agent, together with any other documents required by the transfer agent to consummate such transaction; provided, however, that if such certificates are not delivered within five (5) business days of the date of submission of such certificates and other documents, the Company shall pay, as liquidated damages and not as a penalty for the delay in issuance of the certificates (which remedy shall constitute the Purchasers exclusive monetary remedy), an amount equal to 1.0% of the aggregate purchase price of the Securities sold by the Purchaser and evidenced by such certificate(s) for each thirty (30) day period (or portion thereof) beyond such four (4) business day period that the unlegended certificates have not been so delivered.

ARTICLE 9

MISCELLANEOUS

9.1 Survival of Representations, Warranties and Agreements. Notwithstanding any investigation made by any party to this Agreement, all covenants, agreements, representations and warranties made by the Company and the Purchasers herein shall survive the execution of this Agreement, the delivery to the Purchasers of the Shares being purchased and the payment therefor; provided, however, that the representations and warranties made by the Company and the Purchasers herein shall expire upon the second anniversary of the Closing Date.

9.2 Broker's Fee. The Company represents that it neither is nor will be obligated for any finder's or broker's fee or commission in connection with this transaction, except for the fee payable to ThinkEquity Partners LLC. The Company agrees to indemnify and hold harmless the Purchaser from any liability for any commission or compensation in the nature of a finder's or broker's fee (and any asserted liability) for which the Company or any of its officers, employees or representatives is responsible.

9.3 Notices. All notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (i) upon delivery to the party to be notified, (ii) when received by confirmed facsimile, or (iii) one (1) business day after deposit with a nationally recognized overnight carrier, specifying next business day delivery, with written verification of receipt. All communications shall be sent to the Company and the Purchasers as follows or at such other addresses as the Company or the Purchasers may designate upon ten (10) days' advance written notice to the other party:

(A) if to the Company, to:

Idera Pharmaceuticals, Inc.
345 Vassar Street
Cambridge, Massachusetts 02139
Attention: Chief Executive Officer
Facsimile: (617) 679-5542

with a copy to:

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109
Attention: Stuart Falber
Facsimile: (617) 526-5000

(B) if to a Purchaser, at its address as set forth on the Schedule of Purchasers to this Agreement.

9.4 Changes. This Agreement may not be modified or amended except pursuant to an instrument in writing signed by the Company and the Purchasers holding a majority of the

Shares then outstanding. No provision hereunder may be waived other than in a written instrument executed by the waiving party.

9.5 Headings. The headings of the various sections of this Agreement have been inserted for convenience of reference only and shall not be deemed to be part of this Agreement.

9.6 Severability. In case any provision contained in this Agreement should be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby.

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

Purchasers irrevocably consent to the jurisdiction of the United States federal courts and the state courts located in the State of New York, Borough of Manhattan, in any suit or proceeding based on or arising under this Agreement and irrevocably agree that all claims in respect of such suit or proceeding may be determined in such courts. The Company and the Purchasers irrevocably waive the defense of an inconvenient forum to the maintenance of such suit or proceeding. Each party further agrees that service of process upon such party, mailed by first class mail, shall be deemed in every respect effective service of process upon such party in any such suit or proceeding. Nothing herein shall affect a party's right to serve process in any other manner permitted by law.

9.8 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall constitute an original, but all of which, when taken together, shall constitute but one instrument, and shall become effective when one or more counterparts have been signed by each party hereto and delivered (including by facsimile) to the other parties.

9.9 Entire Agreement. This Agreement and the instruments referenced herein contain the entire understanding of the parties with respect to the matters covered herein and therein and, except as specifically set forth herein or therein, neither the Company nor the Purchasers make any representation, warranty, covenant or undertaking with respect to such matters.

9.10 Assignment. Except as otherwise expressly provided herein, the provisions hereof shall inure to the benefit of, and be binding upon, the parties hereto and their respective permitted successors, assigns, heirs, executors and administrators. This Agreement and the rights of a Purchaser hereunder may not be assigned by the Purchaser without the prior written consent of the Company, except such consent shall not be required in cases of assignments by a Purchaser as permitted under Section 8.1, provided that such assignee agrees in writing to be bound by the terms of this Agreement. Notwithstanding the foregoing, the rights set forth in Sections 5.3, 5.10 and 5.11 may not be assigned or transferred.

9.11 Further Assurances. Each party agrees to cooperate fully with the other parties and to execute such further instruments, documents and agreements and to give such further written assurance as may be reasonably requested by any other party to evidence and reflect the transactions described herein and contemplated hereby and to carry into effect the intents and purposes of this Agreement.

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9.12 Publicity. The Company and BBI shall have the right to approve before issuance any press releases, SEC or other filings, or any other public statements with respect to the transactions contemplated hereby; provided, however, that the Company and any Purchaser shall be entitled, without the prior approval of any other party hereto, to make any press release or SEC or other filings with respect to such transactions as is required by applicable law and regulations (although a reasonable time prior to the release or filing of any such press release or filing the other parties hereto (i) shall be consulted by the party making such press release or filing in connection with such release or filing and (ii) shall be provided with a copy of and a reasonable opportunity to comment on such release or filing); and provided further, however, that neither the Company nor BBI shall be required to obtain the consent of any other party hereto in connection with any release or filing to the extent that such other party has previously approved the disclosure to be provided in such release or filing in accordance with this Section 9.12.

9.13 Confidentiality. Each Purchaser agrees that it will keep confidential and will not disclose or divulge any confidential, proprietary or secret information which such Purchaser may obtain from the Company pursuant to reports, notices and other materials submitted by the Company to such Purchaser pursuant to this Agreement, pursuant to the rights granted under Section 5.10 or otherwise pursuant to the Rights Agreement, unless (a) such information is known, or until such information becomes known, to the public or (b) such information is required to be disclosed in legal proceedings (such as by deposition, interrogatory, request for documents, subpoena, civil investigation demand, filing with any governmental authority or similar process), provided, however, that before making any use or disclosure in reliance on this clause (b) the Purchaser shall give the Company at least fifteen (15) days prior written notice (or such shorter period as required by law) specifying the circumstances

giving rise thereto and will furnish only that portion of the non-public information which is legally required and will exercise its best efforts to obtain reliable assurance that confidential treatment will be accorded any non-public information so furnished.

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24.

IN WITNESS WHEREOF, the parties hereto have executed this Common Stock Purchase Agreement as of the date first set forth above.

IDERA PHARMACEUTICALS, INC.

By: /s/ Sudhir Agrawal

Sudhir Agrawal
Chief Executive Officer

PURCHASER:

BAKER BROS. INVESTMENTS, L.P.

By: Baker Bros. Capital, L.P.,
its general partner

By: Baker Bros. Capital (GP), LLC,
its general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

BAKER BROS. INVESTMENTS II, L.P.

By: Baker Bros. Capital, L.P.,
its general partner

By: Baker Bros. Capital (GP), LLC,
its general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

PURCHASER:

BAKER BIOTECH FUND I, L.P.

By: Baker Biotech Capital, L.P.,
its general partner

By: Baker Biotech Capital (GP), LLC,
its general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

BAKER BIOTECH FUND II, L.P.

By: Baker Biotech Capital II, L.P.,
its general partner

By: Baker Biotech Capital II (GP), LLC,
is general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

BAKER BIOTECH FUND II (Z), L.P.

By: Baker Biotech Capital II (Z), L.P.,
its general partner

By: Baker Biotech Capital II (Z) (GP),
LLC, is general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

BAKER BIOTECH FUND III, L.P.

By: Baker Biotech Capital III, L.P.,
its general partner

By: Baker Biotech Capital III (GP), LLC,
is general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

PURCHASER:

BAKER BIOTECH FUND III (Z), L.P.

By: Baker Biotech Capital III (Z), L.P.,
its general partner

By: Baker Biotech Capital III (Z) (GP),
LLC, is general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

14159, L.P.

By: 14159 Capital, L.P.,
its general partner

By: 14159 Capital (GP), LLC,
is general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

PURCHASER:

TANG CAPITAL PARTNERS, LP

By: Tang Capital Management, LLC, its
General Partner

By: /s/ Kevin C. Tang

Kevin C. Tang, Manager

PURCHASER:

FINSBURY EMERGING BIOTECHNOLOGY TRUST
PLC

By: /s/ Samuel D. Isaly

Name: Samuel D. Isaly
Title: Managing Partner of Investment
Advisor

IDERA PHARMACEUTICALS, INC.

REGISTRATION RIGHTS AGREEMENT

REGISTRATION RIGHTS AGREEMENT (this "AGREEMENT"), dated as of March 24, 2006, by and among IDERA PHARMACEUTICALS, INC., a corporation organized under the laws of the State of Delaware (the "COMPANY"), and the undersigned the "PURCHASERS".

WHEREAS:

In connection with the Common Stock Purchase Agreement, dated as of March 24, 2006, by and among the Company and the Purchasers (the "STOCK PURCHASE AGREEMENT"), the Company has agreed, upon the terms and subject to the conditions contained therein, to issue and sell to the Purchasers (i) shares (the "SHARES") of the Company's common stock, par value \$0.001 per share (the "COMMON STOCK"), and (ii) warrants (the "WARRANTS") to acquire shares of Common Stock. The shares of Common Stock issuable upon exercise of or otherwise pursuant to the Warrants are referred to herein as the "WARRANT SHARES."

To induce the Purchasers to execute and deliver the Stock Purchase Agreement, the Company has agreed to provide certain registration rights under the Securities Act of 1933, as amended, and the rules and regulations thereunder, or any similar successor statute (collectively, the "SECURITIES ACT"), and applicable state securities laws.

NOW, THEREFORE, in consideration of the premises and the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company and the Purchasers hereby agree as follows:

1. DEFINITIONS.

(A) As used in this Agreement, the following terms shall have the following meanings:

(I) "PURCHASERS" means the Purchasers and any transferees or assignees who agree to become bound by the provisions of this Agreement in accordance with Section 10 hereof.

(II) "REGISTER," "REGISTERED," and "REGISTRATION" refer to a registration effected by preparing and filing a Registration Statement or Statements in compliance with the Securities Act and pursuant to Rule 415 under the Securities Act or any successor rule providing for offering securities on a continuous basis ("RULE 415"), and the declaration or ordering of effectiveness of such Registration Statement by the United States Securities and Exchange Commission (the "SEC").

(III) "REGISTRABLE SECURITIES" means (a) the Shares, (b) the Warrant Shares and (c) any shares of capital stock issued or issuable, from time to time (with any adjustments), in respect of the Shares or the Warrant Shares by virtue of any stock split, stock dividend, recapitalization or similar event; provided, however, that shares of Common Stock that are Registrable Securities shall cease to be Registrable Securities upon the earliest of (A) the date

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that such shares are eligible to be sold under Rule 144(k) of the Securities Act, (B) the date that such shares are sold (I) pursuant to a registration statement, (II) to or through a broker, dealer or underwriter in a public securities transaction and/or (III) in a transaction exempt from the registration and prospectus delivery requirements of the Securities Act such that all transfer restrictions and restrictive legends with respect thereto, if any, are removed upon the consummation of such sale, or (C) any sale or transfer to any Person which by virtue of Section 10 of this Agreement is not entitled to the rights provided by this Agreement. Wherever reference is made in this Agreement to a request or consent of holders of a certain percentage of Registrable Securities, the determination of such percentage shall include

shares of Common Stock issuable upon exercise of the Warrants to the extent any such Warrants are outstanding, even if such exercise has not been effected.

(IV) "REGISTRATION STATEMENT" means a registration statement of the Company under the Securities Act.

(B) Capitalized terms used herein and not otherwise defined herein shall have the respective meanings set forth in the Securities Purchase Agreement.

2. REGISTRATION.

(A) MANDATORY REGISTRATION. The Company shall prepare promptly and file with the SEC as soon as practicable, but in no event later than the thirtieth (30th) day following the date hereof (the "FILING DATE"), a Registration Statement on Form S-3 (or, if Form S-3 is not then available, on such form of Registration Statement as is then available to effect a registration of all of the Registrable Securities, covering the resale of the Registrable Securities. The Registration Statement filed hereunder, to the extent allowable under the Securities Act and the Rules promulgated thereunder (including Rule 416), shall state that such Registration Statement also covers such indeterminate number of additional shares of Common Stock as may become issuable upon exercise of the Warrants to prevent dilution resulting from stock splits, stock dividends or similar transactions.

(B) PAYMENTS BY THE COMPANY. The Company shall use its best efforts to cause the Registration Statement required to be filed pursuant to Section 2(a) hereof to become effective as soon as practicable after the Filing Date. At the time of effectiveness, the Company shall ensure that such Registration Statement covers all of the Registrable Securities (including, if necessary, by filing an amendment prior to the effective date of the Registration Statement to increase the number of shares covered thereby). If (i) the Registration Statement required to be filed by the Company pursuant to Section 2(a) hereof is not filed with the SEC prior to the Filing Date or declared effective by the SEC on or before the one hundred twentieth (120th) day after the date hereof (the "REGISTRATION DEADLINE") or, (ii) if, after any such Registration Statement has been declared effective by the SEC, sales of any of the Registrable Securities required to be covered by such Registration Statement cannot be made pursuant to such Registration Statement because such Registration Statement has been suspended (by reason of a stop order or the Company's failure to update the Registration Statement or otherwise) except as a result of a permitted Suspension under Section 9, then the Company will make payments to the Purchasers in such amounts and at such times as shall be determined pursuant to this Section 2(b) as liquidated damages and not as a penalty for such delay in or reduction of their ability to sell the

2.

Registrable Securities (which remedy shall constitute the Purchasers exclusive monetary remedy). The Company shall pay to each Purchaser an amount equal to the product of (i) the aggregate purchase price of the Shares and Warrant Shares then held by such Purchaser (the "AGGREGATE SHARE PRICE"), multiplied by (ii) one hundredths (.01), for each thirty (30) day period (or portion thereof) (A) after the Filing Date and prior to the date the Registration Statement is filed with the SEC pursuant to Section 2(a), (B) after the Registration Deadline and prior to the date the Registration Statement filed pursuant to Section 2(a) is declared effective by the SEC, and (C) during which sales of any Registrable Securities cannot be made pursuant to any such Registration Statement after the Registration Statement has been declared effective; provided, however, that there shall be excluded from each such period any delays which are solely attributable to changes (other than corrections of Company mistakes with respect to information previously provided by the Purchasers) required by the Purchasers in the Registration Statement with respect to information relating to the Purchasers, including, without limitation, changes to the plan of distribution. Such amounts shall be paid in cash within five (5) days after the end of each period that gives rise to such obligation, provided that, if any such period extends for more than thirty (30) days, interim payments shall be made for each such thirty (30) day period. Notwithstanding the foregoing, in no event shall the Company be obligated to pay liquidated damages (a) to more than one Purchaser in respect of the same Securities for the same period of time or (b) in an aggregate amount that exceeds 10% of the purchase price paid by such Purchaser for such Shares and Warrant Shares.

3. OBLIGATIONS OF THE COMPANY.

In connection with the registration of the Registrable Securities, the Company shall have the following obligations:

(A) The Company shall respond promptly to any and all comments made by the staff of the SEC to the Registration Statement required by Section 2(a), and shall submit to the SEC before the close of business on a business day within five business days after the business day on which the Company learns (either by telephone or in writing) that no review of such Registration Statement will be made by the SEC or that the staff of the SEC has no further comments on such Registration Statement, as the case may be, a request for acceleration of the effectiveness of such Registration Statement to a time and date as soon as practicable. The Company shall use its best efforts to keep such Registration Statement effective pursuant to Rule 415 at all times until no Registrable Securities remain outstanding (the "REGISTRATION PERIOD"). The Registration Statement (including any amendments or supplements thereto and prospectuses contained therein and all documents incorporated by reference therein) (i) shall comply in all material respects with the requirements of the Securities Act and the rules and regulations of the SEC promulgated thereunder and (ii) shall not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein, or necessary to make the statements therein not misleading.

(B) The Company shall prepare and file with the SEC such amendments (including post-effective amendments) and supplements to the Registration Statement and the prospectus used in connection with the Registration Statement as may be necessary to keep the Registration Statement effective at all times during the Registration Period, and, during such period, comply with the provisions of the Securities Act with respect to the disposition of all

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Registrable Securities of the Company covered by the Registration Statement until such time as all of such Registrable Securities have been disposed of in accordance with the intended methods of disposition by the seller or sellers thereof as set forth in the Registration Statement.

(C) The Company shall furnish to each Purchaser whose Registrable Securities are included in the Registration Statement (i) promptly after the same is prepared and publicly distributed or filed with the SEC, one copy of the Registration Statement and any amendment thereto, each preliminary prospectus and prospectus and each amendment or supplement thereto, (ii) to the extent not publicly available on the SEC's EDGAR system, promptly after the same is filed with the SEC or received by the Company, one copy of each letter written by or on behalf of the Company to the SEC or the staff of the SEC (including, without limitation, any request to accelerate the effectiveness of the Registration Statement or amendment thereto) and each item of correspondence from the SEC or the staff of the SEC, in each case relating to the Registration Statement (other than any portion, if any, thereof which contains information for which the Company has sought or intends to seek confidential treatment); (iii) within 24 hours of the date of effectiveness of the Registration Statement or any amendment thereto, a notice stating that the Registration Statement or amendment has been declared effective; and (iv) such number of copies of a prospectus, including a preliminary prospectus, and all amendments and supplements thereto and such other documents as such Purchaser may reasonably request in order to facilitate the disposition of the Registrable Securities owned by such Purchaser. Notwithstanding the foregoing, the Company shall not send to any Purchaser any document pursuant to clause (ii) above that the Company determines contains material nonpublic information unless prior to transmittal of such document the Company and such Purchaser agree otherwise and such Purchaser enters into an appropriate confidentiality agreement with the Company with respect thereto.

(D) The Company shall use its best efforts to (i) register and qualify the Registrable Securities covered by the Registration Statement under such other securities or "blue sky" laws of such jurisdictions in the United States as each Purchaser who holds Registrable Securities being offered reasonably requests, (ii) prepare and file in those jurisdictions such amendments (including post-effective amendments) and supplements to such registrations and qualifications as may be necessary to maintain the effectiveness thereof during

the Registration Period, (iii) take such other actions as may be necessary to maintain such registrations and qualifications in effect at all times during the Registration Period, and (iv) take all other actions reasonably necessary or advisable to qualify the Registrable Securities for sale in such jurisdictions; provided, however, that the Company shall not be required in connection therewith or as a condition thereto to (a) qualify to do business in any jurisdiction where it would not otherwise be required to qualify but for this Section 3(d), (b) subject itself to general taxation in any such jurisdiction, (c) file a general consent to service of process in any such jurisdiction, (d) provide any undertakings that cause the Company undue expense or burden, or (e) make any change in its charter or by-laws, which in each case the Board of Directors of the Company determines to be contrary to the best interests of the Company and its stockholders.

(E) As promptly as practicable after becoming aware of such event, the Company shall notify each Purchaser by telephone and facsimile of the happening of any event, of which the Company has knowledge, as a result of which the prospectus included in the Registration Statement, as then in effect, includes an untrue statement of a material fact or

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omission to state a material fact required to be stated therein or necessary to make the statements therein not misleading, shall use its best efforts promptly to prepare a supplement or amendment to the Registration Statement to correct such untrue statement or omission, and, following such filing and, if applicable, the effectiveness of such filing, shall deliver such number of copies of such supplement or amendment to each Purchaser as such Purchaser may reasonably request. In no event shall the Company disclose to any Purchaser any material-non-public information, including without limitation the event, the untrue statement or the omission.

(F) The Company shall use its best efforts (i) to prevent the issuance of any stop order or other suspension of effectiveness of a Registration Statement, and, if such an order is issued, to obtain the withdrawal of such order at the earliest practicable moment (including in each case by amending or supplementing such Registration Statement) and (ii) to notify each Purchaser who holds Registrable Securities being sold (or, in the event of an underwritten offering, the managing underwriters) of the issuance of such order and the resolution thereof (and if such Registration Statement is supplemented or amended, deliver such number of copies of such supplement or amendment to each Purchaser as such Purchaser may reasonably request).

(G) The Company shall permit a single firm of counsel designated by the Purchasers to review the Registration Statement and all amendments and supplements thereto a reasonable period of time prior to its filing with the SEC and shall consider in good faith and consult with such counsel regarding any comment such counsel may reasonably make.

(H) The Company shall make generally available to its security holders as soon as practical, but not later than ninety (90) days after the first anniversary of the close of the fiscal quarter during which the Registration Statement was declared effective, an earnings statement (in form complying with the provisions of Rule 158 under the Securities Act) covering a twelve-month period beginning not later than the first day of the Company's fiscal quarter next following the effective date of the Registration Statement.

(I) At the request of any Purchaser in the case of an underwritten public offering, the Company shall furnish, on the date of effectiveness of the Registration Statement (i) an opinion, dated as of such date, from counsel representing the Company addressed to the underwriters and in form, scope and substance as is customarily given in an underwritten public offering and (ii) a letter, dated such date, from the Company's independent certified public accountants in form and substance as is customarily given by independent certified public accountants to underwriters in an underwritten public offering, addressed to the underwriters, if any.

(J) For the sole purpose of enabling the Purchasers to conduct an investigation as to the accuracy of the Registration Statement for the purpose of reducing or eliminating the Purchasers' liability under the Securities Act, the Company shall make available for inspection by one firm of attorneys and one firm of accountants or other agents retained by the Purchasers (collectively,

the "INSPECTORS") following reasonable notice all pertinent financial and other records, and pertinent corporate documents and properties of the Company (collectively, the "RECORDS"), as shall be reasonably deemed necessary by each Inspector to enable each Inspector to exercise its due diligence responsibility, and cause the Company's officers to supply such information which any Inspector may reasonably request for purposes of

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such due diligence. Nothing herein shall be deemed to limit the Purchasers' ability to sell Registrable Securities in a manner which is otherwise consistent with applicable laws and regulations. The Company shall not disclose material nonpublic information to the Inspectors unless the Company and the Purchasers agree and the Purchasers and the Inspectors enter into an appropriate confidentiality agreement with the Company with respect thereto.

(K) The Company shall provide a transfer agent and registrar, which may be a single entity, for the Registrable Securities not later than the effective date of the Registration Statement.

(L) The Company shall cooperate with the Purchasers who hold Registrable Securities being to facilitate the timely preparation and delivery of certificates representing Registrable Securities to be offered pursuant to the Registration Statement and enable such certificates to be in such denominations or amounts, as the case may be, as Purchasers may reasonably request and registered in such names as the Purchasers may request.

(M) At the reasonable request of the Purchasers holding a majority in interest of the Registrable Securities, the Company shall prepare and file with the SEC such amendments (including post-effective amendments) and supplements to a Registration Statement and the prospectus used in connection with such Registration Statement as may be necessary in order to change the plan of distribution set forth in such Registration Statement.

(N) From and after the date of this Agreement, the Company shall not, and shall not agree to, allow the holders of any securities of the Company to include any of their securities which are not Registrable Securities in the Registration Statement under Section 2(a) hereof or any amendment or supplement thereto under Section 3(b) hereof without the consent of the holders of a majority in interest of the Registrable Securities.

(O) Prior to the effectiveness of the Registration Statement, the Company shall take all actions necessary to meet the "registrant eligibility" requirements set forth in the general instructions to Form S-3 or any successor form thereto, to continue to be eligible to register the resale of its Common Stock on a registration statement on Form S-3 under the Securities Act.

4. OBLIGATIONS OF THE PURCHASERS. In connection with the registration of the Registrable Securities, the Purchasers shall have the following obligations:

(A) It shall be a condition precedent to the obligations of the Company under Sections 2 and 3 with respect to the Registrable Securities of a particular Purchaser that such Purchaser shall furnish to the Company such information regarding itself, the Registrable Securities held by it and the intended method of disposition of the Registrable Securities held by it as shall be reasonably required to effect the registration of such Registrable Securities and shall execute such documents in connection with such registration as the Company may reasonably request. At least five trading days prior to the first anticipated filing date of the Registration Statement, the Company shall notify each Purchaser of the information the Company requires from each such Purchaser.

(B) Each Purchaser, by such Purchaser's acceptance of the Registrable Securities, agrees to cooperate with the Company as reasonably requested by the Company in

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connection with the preparation and filing of the Registration Statement hereunder, unless such Purchaser has notified the Company in writing of such

Purchaser's election to exclude all of such Purchaser's Registrable Securities from such Registration Statement.

(C) Each Purchaser agrees that, upon receipt of any notice from the Company of the happening of any event of the kind described in Sections 3(e), 3(f) or 9, such Purchaser will immediately discontinue disposition of Registrable Securities pursuant to the Registration Statement covering such Registrable Securities until such Purchaser's receipt of the copies of the supplemented or amended prospectus contemplated by Sections 3(e), 3(f) or 9.

5. EXPENSES OF REGISTRATION. All reasonable expenses incurred by the Company or the Purchasers in connection with registrations, filings or qualifications pursuant to Sections 2 and 3 above, including, without limitation, all registration, listing and qualifications fees, printers and accounting fees, the fees and disbursements of counsel for the Company, the fees and disbursements of one counsel selected by the Purchasers, and the underwriting discounts and commissions shall be borne by the Company. In the event that one party breaches this Agreement, such party shall pay all of the other party's costs and expenses (including reasonable legal fees) incurred by such other party in connection with the enforcement of such other party's rights hereunder.

6. INDEMNIFICATION. In the event any Registrable Securities are included in a Registration Statement under this Agreement:

(A) To the extent permitted by law, the Company will indemnify, hold harmless and defend (i) each Purchaser who holds such Registrable Securities, and (ii) the directors, officers, partners, members, employees and agents of such Purchaser and each person who controls any Purchaser within the meaning of Section 15 of the Securities Act or Section 20 of the Securities Exchange Act of 1934, as amended (the "EXCHANGE ACT"), if any, (each, an "INDEMNIFIED PERSON"), against any joint or several losses, claims, damages, liabilities or expenses (collectively, together with actions, proceedings or inquiries by any regulatory or self-regulatory organization, whether commenced or threatened, in respect thereof, "CLAIMS") to which any of them may become subject insofar as such Claims arise out of or are based upon: (i) any untrue statement or alleged untrue statement of a material fact in a Registration Statement or the omission or alleged omission to state therein a material fact required to be stated or necessary to make the statements therein not misleading, (ii) any untrue statement or alleged untrue statement of a material fact contained in any preliminary prospectus if used prior to the effective date of such Registration Statement, or contained in the final prospectus (as amended or supplemented, if the Company files any amendment thereof or supplement thereto with the SEC) or the omission or alleged omission to state therein any material fact necessary to make the statements made therein, in light of the circumstances under which the statements therein were made, not misleading, or (iii) any violation or alleged violation by the Company of the Securities Act, the Exchange Act, any other law, including, without limitation, any state securities law, or any rule or regulation thereunder relating to the offer or sale of the Registrable Securities (the matters in the foregoing clauses (i) through (iii), collectively, "VIOLATIONS"). Subject to the restrictions set forth in Section 6(c) with respect to the number of legal counsel, the Company shall reimburse the Purchasers and each other Indemnified Person, promptly as such expenses are incurred and are due and payable, for any reasonable legal fees or other reasonable expenses

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incurred by them in connection with investigating or defending any such Claim. Notwithstanding anything to the contrary contained herein, the indemnification agreement contained in this Section 6(a): (i) shall not apply to a Claim arising out of or based upon (A) a Violation which occurs in reliance upon and in conformity with information furnished in writing to the Company by such Indemnified Person expressly for use in the Registration Statement or any such amendment thereof or supplement thereto, (B) the failure of a Purchaser to comply with Section 4(c) or (C) the use by a Purchaser in connection with any sale or sales of Registrable Securities of a prospectus containing any untrue statement or omission of a material fact following notification by the Company that such prospectus contains an untrue statement or omission of a material fact and receipt by the Purchaser of a corrected prospectus; and (ii) shall not apply to amounts paid in settlement of any Claim if such settlement is effected without the prior written consent of the Company, which consent shall not be

unreasonably withheld. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of the Indemnified Person and shall survive the transfer of the Registrable Securities by the Purchasers pursuant to Section 10 hereof.

(B) Each Purchaser who holds such Registrable Securities agrees severally and not jointly to indemnify, hold harmless and defend, to the same extent and in the same manner set forth in Section 6(a), the Company, each of its directors, each of its officers who signs the Registration Statement, its employees, agents and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, and any other stockholder selling securities pursuant to the Registration Statement or any of its directors or officers or any person who controls such stockholder within the meaning of the Securities Act or the Exchange Act (collectively and together with an Indemnified Person, an "INDEMNIFIED PARTY"), against any Claim to which any of them may become subject, under the Securities Act, the Exchange Act or otherwise, insofar as such Claim arises out of or is based upon any Violation, in each case to the extent (and only to the extent) that such Violation occurs in reliance upon and in conformity with written information furnished to the Company by such Purchaser expressly for use in connection with such Registration Statement; and subject to Section 6(c) such Purchaser will reimburse any legal or other expenses (promptly as such expenses are incurred and are due and payable) reasonably incurred by them in connection with investigating or defending any such Claim; provided, however, that (I) the indemnity agreement contained in this Section 6(b) shall not apply to amounts paid in settlement of any Claim if such settlement is effected without the prior written consent of such Purchaser, which consent shall not be unreasonably withheld, and (II) the Purchaser shall be liable under this Agreement (including this Section 6(b) and Section 7) for only that amount as does not exceed the net proceeds actually received by such Purchaser as a result of the sale of Registrable Securities pursuant to such Registration Statement. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of such Indemnified Party and shall survive the transfer of the Registrable Securities by the Purchasers pursuant to Section 10 hereof.

(C) Promptly after receipt by an Indemnified Person or Indemnified Party under this Section 6 of notice of the threat or commencement of any action (including any governmental action), such Indemnified Person or Indemnified Party shall, if a Claim in respect thereof is to be made against any indemnifying party under this Section 6, deliver to the indemnifying party a written notice of the commencement thereof, and the indemnifying party shall have the right to participate in, and, to the extent the indemnifying party so desires, jointly

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with any other indemnifying party similarly noticed, to assume control of the defense thereof with counsel mutually satisfactory to the indemnifying party and the Indemnified Person or the Indemnified Party, as the case may be; provided, however, that such indemnifying party shall not be entitled to assume such defense and an Indemnified Person or Indemnified Party shall have the right to retain its own counsel with the fees and expenses to be paid by the indemnifying party, if, in the reasonable opinion of counsel retained by the indemnifying party, the representation by such counsel of the Indemnified Person or Indemnified Party and the indemnifying party would be inappropriate due to actual or potential conflicts of interest between such Indemnified Person or Indemnified Party and any other party represented by such counsel in such proceeding or the actual or potential defendants in, or targets of, any such action include both the Indemnified Person or the Indemnified Party and the indemnifying party and any such Indemnified Person or Indemnified Party reasonably determines, based upon the reasonable opinion of counsel, that there may be legal defenses available to such Indemnified Person or Indemnified Party which are in conflict with those available to such indemnifying party. The indemnifying party shall pay for only one separate legal counsel for the Indemnified Persons or the Indemnified Parties, as applicable, and such legal counsel shall be selected by Purchasers holding a majority-in-interest of the Registrable Securities included in the Registration Statement to which the Claim relates (with the approval of the Purchasers if it holds Registrable Securities included in such Registration Statement), if the Purchasers are entitled to indemnification hereunder, or by the Company, if the Company is entitled to indemnification hereunder, as applicable. The failure to deliver written notice to the indemnifying party within a reasonable time of the commencement of any such action shall not relieve such indemnifying party of any liability to the

Indemnified Person or Indemnified Party under this Section 6, except to the extent that the indemnifying party is actually prejudiced in its ability to defend such action.

(D) The Indemnified Party shall cooperate fully with the indemnifying party in connection with any negotiation or defense of any such action or claim by the indemnifying party and shall furnish to the indemnifying party all information reasonably available to the Indemnified Party which relates to such action or claim.

(E) No indemnifying party shall, except with the consent of each Indemnified Party (which consent shall not be unreasonably withheld), consent to entry of any judgment or enter into any settlement which does not include the giving by the claimant to such Indemnified Party a release from all liability in respect to such claim or litigation.

7. CONTRIBUTION. To the extent any indemnification by an indemnifying party required by the terms of this Agreement is prohibited or limited by law, the indemnifying party, in lieu of indemnifying the Indemnified Party, agrees to contribute with respect to any amounts for which it would otherwise be liable under Section 6 up to the amount paid or payable by the indemnifying party as a result of the Claims in such proportion as is appropriate to reflect the relative fault of the indemnifying party, on the one hand, and the Indemnified Person or Indemnified Party, as the case may be, on the other hand, with respect to the Violation giving rise to the applicable Claim; provided, however, that (i) no contribution shall be made under circumstances where the maker would not have been liable for indemnification under the fault standards set forth in Section 6, (ii) no person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any seller of Registrable Securities who was not guilty of such fraudulent misrepresentation, and (iii)

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contribution (together with any indemnification or other obligations under this Agreement) by any seller of Registrable Securities shall be limited in amount to the net amount of proceeds received by such seller from the sale of such Registrable Securities. The relative fault of the Company and the Purchasers shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of material fact related to information supplied by the Company or the Purchasers and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission.

8. REPORTS UNDER THE EXCHANGE ACT. With a view to making available to the Purchasers the benefits of Rule 144 promulgated under the Securities Act or any other similar rule or regulation of the SEC that may at any time permit each Purchaser to sell securities of the Company to the public, so long as the Registration Statement is effective and such Purchaser holds Registrable Securities, without registration ("RULE 144"), the Company agrees to:

(I) file with the SEC in a timely manner and make and keep available all reports and other documents required of the Company under the Securities Act and the Exchange Act so long as the Company remains subject to such requirements (it being understood that nothing herein shall limit the Company's obligations under Section 5.2 of the Common Stock Purchase Agreement) and the filing and availability of such reports and other documents is required for the applicable provisions of Rule 144; and

(II) furnish to each Purchaser so long as such Purchaser owns shares of Warrants or Registrable Securities, promptly upon request, (i) a written statement by the Company that it has complied with the reporting requirements of Rule 144, the Securities Act and the Exchange Act, (ii) a copy of the most recent annual or quarterly report of the Company and such other reports and documents so filed by the Company, and (iii) such other information as may be reasonably requested to permit the Purchasers to sell such securities under Rule 144 without registration.

9. SUSPENSION OF USE OF PROSPECTUS. Subject to Section 2(b), the Company may, by written notice to the Purchasers, for a period not to exceed thirty (30) days thereafter, (i) delay the filing of, or effectiveness of, the Registration Statement; or (ii) suspend the Registration Statement after effectiveness and require that the Purchasers immediately cease sales of Registrable Securities

pursuant to the Registration Statement, if (a) the Company reasonably believes that there is or may be in existence material nonpublic information or events involving the Company, the failure of which to be disclosed in the prospectus included in the registration statement would result in a Violation (as defined below) and (b) the Company shall furnish to the Purchasers a certificate signed by the Chairman of the Board of Directors of the Company stating that in the good faith judgment of the Board of Directors of the Company, it would have a material adverse effect on the Company (which for this purpose shall include a material adverse effect on a pending transaction) to disclose such material nonpublic information or events in the prospectus included in the registration statement (a "SUSPENSION"). The Company shall not disclose such information or events to any Purchaser. If the Company requires the Purchasers to cease sales of Registrable Securities pursuant to a Suspension, the Company shall, as promptly as practicable following the termination of the circumstance which entitled the Company to do so, take such actions as may be necessary to reinstate the

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effectiveness of the Registration Statement and/or give written notice to the Purchasers authorizing them to resume sales pursuant to the Registration Statement. If as a result thereof the prospectus included in the Registration Statement has been amended to comply with the requirements of the Securities Act, the Company shall enclose such revised prospectus with the notice to the Purchasers given pursuant hereto, and the Purchasers shall make no offers or sales of Registrable Securities pursuant to the Registration Statement other than by means of such revised prospectus. No more than two such Suspensions, for a maximum cumulative period of 45 days, shall occur in any 12 month period.

10. ASSIGNMENT OF REGISTRATION RIGHTS. The rights of the Purchasers hereunder, including the right to have the Company register Registrable Securities pursuant to this Agreement, shall be automatically assignable by each Purchaser to any affiliate of the Purchaser to which all or any portion of the Registrable Securities are transferred if: (i) the Purchaser agrees in writing with the transferee or assignee to assign such rights, and a copy of such agreement is furnished to the Company after such assignment, (ii) the Company is furnished with written notice of (a) the name and address of such transferee or assignee, and (b) the securities with respect to which such registration rights are being transferred or assigned, (iii) the transferee or assignee agrees in writing for the benefit of the Company to be bound by all of the provisions contained herein, and (iv) such transfer shall have been made in accordance with the applicable requirements of the Stock Purchase Agreement and the Warrants, as applicable.

11. AMENDMENT OF REGISTRATION RIGHTS. Provisions of this Agreement may be amended and the observance thereof may be waived (either generally or in a particular instance and either retroactively or prospectively), only with written consent of the Company and Purchasers who hold a majority in interest of the Registrable Securities; provided, however, that no consideration shall be paid to an Purchaser by the Company in connection with an amendment hereto unless each Purchaser similarly affected by such amendment receives a pro-rata amount of consideration from the Company. Unless an Purchaser otherwise agrees, each amendment hereto must similarly affect each Purchaser. Any amendment or waiver effected in accordance with this Section 11 shall be binding upon each Purchaser and the Company.

12. MISCELLANEOUS.

(A) A person or entity is deemed to be a holder of Registrable Securities whenever such person or entity owns of record such Registrable Securities. If the Company receives conflicting instructions, notices or elections from two or more persons or entities with respect to the same Registrable Securities, the Company shall act upon the basis of instructions, notice or election received from the registered owner of such Registrable Securities.

(B) All notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (i) upon delivery to the party to be notified, (ii) when received by confirmed facsimile, or (iii) one (1) business day after deposit with a nationally recognized overnight carrier, specifying next business day delivery, with written verification of receipt. All communications shall be sent to the Company and the Purchasers as follows or at

such other

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addresses as the Company or the Purchasers may designate upon ten (10) days' advance written notice to the other party:

If to the Company:

Idera Pharmaceuticals, Inc.
345 Vassar Street
Cambridge, MA 02139
Attn: Chief Executive Officer
Fax: 617-679-5592

with a copy simultaneously transmitted by like means to:

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109
Attn: Stuart Falber
Fax: (617) 526-5000

If to a Purchaser, at its address as set forth on the Schedule of Purchasers attached to the Stock Purchase Agreement.

(C) Failure of any party to exercise any right or remedy under this Agreement or otherwise, or delay by a party in exercising such right or remedy, shall not operate as a waiver thereof.

(D) This Agreement shall be governed by and construed in accordance with the laws of the State of New York. The Company and the Purchasers irrevocably consent to the jurisdiction of the United States federal courts and the state courts located in the State of New York, Borough of Manhattan, in any suit or proceeding based on or arising under this Agreement and irrevocably agree that all claims in respect of such suit or proceeding may be determined in such courts. The Company and the Purchasers irrevocably waive the defense of an inconvenient forum to the maintenance of such suit or proceeding. Each party further agrees that service of process upon such party, mailed by first class mail, shall be deemed in every respect effective service of process upon such party in any such suit or proceeding. Nothing herein shall affect the a party's right to serve process in any other manner permitted by law.

(E) This Agreement, the Stock Purchase Agreement (including all schedules and exhibits thereto) and the Warrants constitute the entire agreement among the parties hereto with respect to the subject matter hereof and thereof. There are no restrictions, promises, warranties or undertakings, other than those set forth or referred to herein and therein. This Agreement, the Stock Purchase Agreement and the Warrants supersede all prior agreements and understandings among the parties hereto with respect to the subject matter hereof and thereof.

(F) Subject to the requirements of Section 10 hereof, this Agreement shall inure to the benefit of and be binding upon the successors and assigns of each of the parties hereto.

12.

(G) The headings in this Agreement are for convenience of reference only and shall not limit or otherwise affect the meaning hereof.

(H) This Agreement may be executed in two or more counterparts, each of which shall be deemed an original but all of which shall constitute one and the same agreement. This Agreement, once executed by a party, may be delivered to the other party hereto by facsimile transmission of a copy of this Agreement bearing the signature of the party so delivering this Agreement.

(I) Each party shall do and perform, or cause to be done and performed, all such further acts and things, and shall execute and deliver all

such other agreements, certificates, instruments and documents, as the other party may reasonably request in order to carry out the intent and accomplish the purposes of this Agreement and the consummation of the transactions contemplated hereby.

(J) All consents, approvals and other determinations to be made by the Purchasers pursuant to this Agreement shall be made by the Purchasers holding a majority in interest of the Registrable Securities (determined as if all shares of Warrants then outstanding had been converted into or exercised for Registrable Securities) held by all Purchasers.

(K) Each party to this Agreement has participated in the negotiation and drafting of this Agreement. As such, the language used herein shall be deemed to be the language chosen by the parties hereto to express their mutual intent, and no rule of strict construction will be applied against any party to this Agreement.

(L) For purposes of this Agreement, the term "business day" means any day other than a Saturday or Sunday or a day on which banking institutions in the State of New York are authorized or obligated by law, regulation or executive order to close, and the term "TRADING DAY" means any day on which AMEX, or if the Common Stock is not then traded on AMEX the principal securities exchange or trading market where the Common Stock is then listed or traded, is open for trading.

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13.

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed as of the date first above written.

IDERA PHARMACEUTICALS, INC.

By: /s/ Sudhir Agrawal

Name: Sudhir Agrawal
Its: Chief Executive Officer and
Chief Scientific Officer

[SIGNATURE PAGE TO REGISTRATION RIGHTS AGREEMENT]

PURCHASER:

BAKER BROS. INVESTMENTS, L.P.

By: Baker Bros. Capital, L.P.,
its general partner

By: Baker Bros. Capital (GP), LLC,
its general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

BAKER BROS. INVESTMENTS II, L.P.

By: Baker Bros. Capital, L.P.,
its general partner

By: Baker Bros. Capital (GP), LLC,
its general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

[SIGNATURE PAGE TO REGISTRATION RIGHTS AGREEMENT]

PURCHASER:

TANG CAPITAL PARTNERS, LP

By: Tang Capital Management, LLC,
its General Partner

By: /s/ Kevin C. Tang

Kevin C. Tang, Manager

2.

PURCHASER:

FINSBURY EMERGING BIOTECHNOLOGY TRUST
PLC

By: /s/ Samuel D. Isaly

Name: Samuel D. Isaly
Title: Managing Partner of Investment
Advisor

3.

PURCHASER:

BAKER BIOTECH FUND I, L.P.

By: Baker Biotech Capital, L.P.,
its general partner

By: Baker Biotech Capital (GP), LLC,
its general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

BAKER BIOTECH FUND II, L.P.

By: Baker Biotech Capital II, L.P.,
its general partner

By: Baker Biotech Capital II (GP), LLC,
is general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

BAKER BIOTECH FUND II (Z), L.P.

By: Baker Biotech Capital II (Z), L.P.,
its general partner

By: Baker Biotech Capital II (Z) (GP),
LLC, is general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

BAKER BIOTECH FUND III, L.P.

By: Baker Biotech Capital III, L.P.,
its general partner

By: Baker Biotech Capital III (GP), LLC,
is general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

4.

PURCHASER:

BAKER BIOTECH FUND III (Z), L.P.

By: Baker Biotech Capital III (Z), L.P.,
its general partner

By: Baker Biotech Capital III (Z) (GP),
LLC, is general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

14159, L.P.

By: 14159 Capital, L.P.,
its general partner

By: 14159 Capital (GP), LLC,
is general partner

By: /s/ Julian Baker

Name: Julian Baker
Title: Managing Member

5.

THIS WARRANT AND THE SHARES ISSUABLE UPON EXERCISE OF THIS WARRANT HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR THE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES OR ANY OTHER JURISDICTION. THE SECURITIES REPRESENTED HEREBY MAY NOT BE OFFERED, SOLD OR TRANSFERRED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT FOR THE SECURITIES UNDER APPLICABLE SECURITIES LAWS UNLESS OFFERED, SOLD OR TRANSFERRED PURSUANT TO AN AVAILABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THOSE LAWS.

Right to Purchase _____ Shares of
Common Stock, par value \$.001 per share

March 24, 2006

IDERA PHARMACEUTICALS, INC.
STOCK PURCHASE WARRANT

THIS CERTIFIES THAT, for value received, _____, or its registered assigns, is entitled to purchase from Idera Pharmaceuticals, Inc., a corporation organized under the laws of the State of Delaware (the "COMPANY"), at any time or from time to time during the period specified in Section 2 hereof, _____ (_____) fully paid and nonassessable shares of the Company's common stock, par value \$0.001 per share (the "COMMON STOCK"), at an exercise price per share (the "EXERCISE PRICE") equal to \$0.65. The number of shares of Common Stock purchasable hereunder (the "WARRANT SHARES") and the Exercise Price are subject to adjustment as provided in Section 4 hereof. The term "WARRANTS" means this Warrant and the other warrants of the Company issued pursuant to that certain Common Stock Purchase Agreement, dated as of March 24, 2006, by and among the Company and the other signatories thereto (the "STOCK PURCHASE AGREEMENT").

This Warrant is subject to the following terms, provisions and conditions:

1. MANNER OF EXERCISE; ISSUANCE OF CERTIFICATES; PAYMENT FOR SHARES. Subject to the provisions hereof, including, without limitation, the limitations contained in Section 7 hereof, this Warrant may be exercised by the holder hereof, in whole or in part, by the surrender of this Warrant, together with a completed exercise agreement in the form attached hereto (the "EXERCISE AGREEMENT"), to the Company during normal business hours on any business day at the Company's principal executive offices (or such other office or agency of the Company as it may designate by notice to the holder hereof), and upon payment to the Company in cash, by certified or official bank check or by wire transfer for the account of the Company, of the Exercise Price for the Warrant Shares specified in the Exercise Agreement. The Warrant Shares so purchased shall be deemed to be issued to the holder hereof or such holder's designee, as the record owner of such shares, as of the close of business on the date on which this Warrant shall have been surrendered, the completed Exercise Agreement shall have been delivered, and payment shall have been made for such shares as set forth above or, if such date is not a business

1.

date, on the next succeeding business date (such date being referred to as the "Exercise Date"). The Warrant Shares so purchased, representing the aggregate number of shares specified in the Exercise Agreement, shall be delivered to the holder hereof as soon as possible, and in no event more than ten (10) days, after the Exercise Date (the "DELIVERY PERIOD"). If the Company's transfer agent is participating in the Depository Trust Company ("DTC") Fast Automated Securities Transfer program, and so long as the certificates therefor are to be delivered without a legend, the Company shall cause its transfer agent to electronically transmit the Warrant Shares so purchased to the holder by crediting the account of the holder or its nominee with DTC through its Deposit Withdrawal Agent Commission system ("DTC TRANSFER"). If the aforementioned conditions to a DTC Transfer are not satisfied, the Company shall deliver to the holder physical certificates representing the Warrant Shares so purchased. Further, the holder may instruct the Company to deliver to the holder physical certificates representing the Warrant Shares so purchased in lieu of delivering such shares by way of DTC Transfer. Any certificates so delivered shall be in

such denominations as may be reasonably requested by the holder hereof, shall be registered in the name of such holder or such other name as shall be designated by such holder (upon payment by the holder of any applicable transfer or withholding taxes) and shall bear a restrictive legend as set forth in Section 8.2 of the Stock Purchase Agreement unless the conditions set forth in Section 8.3 of the Stock Purchase Agreement are met in connection with the exercise. If this Warrant shall have been exercised only in part, then the Company shall, at its expense, at the time of delivery of such certificates, deliver to the holder a new Warrant representing the number of shares with respect to which this Warrant shall not then have been exercised.

If, at any time, a holder of this Warrant submits this Warrant, an Exercise Agreement and payment to the Company of the Exercise Price for each of the Warrant Shares specified in the Exercise Agreement, and the Company fails for any reason to deliver, on or prior to the fourth business day following the expiration of the Delivery Period for such exercise, the number of Warrant Shares to which the holder is entitled upon such exercise (an "EXERCISE DEFAULT"), then the Company shall pay to the holder, as liquidated damages and not a penalty for such Exercise Default (which remedy shall constitute the holder's exclusive monetary remedy), payments ("EXERCISE DEFAULT PAYMENTS") for an Exercise Default in the amount of (a) $(N/365)$, multiplied by (b) the amount by which the Market Price (as defined in Section 4(j) hereof) on the Exercise Date exceeds the Exercise Price in respect of such Warrant Shares, multiplied by (c) the number of shares of Common Stock the Company failed to so deliver in such Exercise Default, multiplied by (d) .12, where N = the number of days from the last day of the Delivery Period to the date that the Company delivers the number of Warrant Shares to which the holder was entitled upon such exercise. The accrued Exercise Default Payment for each calendar month shall be paid in cash to holder by the fifth day of the month following the month in which it has accrued.

Nothing herein shall limit the holder's right to pursue actual damages for the Company's failure to maintain a sufficient number of authorized shares of Common Stock as required pursuant to the terms of Section 3(b) hereof, and the holder shall have the right to pursue all remedies available at law or in equity (including a decree of specific performance and/or injunctive relief).

2.

2. PERIOD OF EXERCISE. This Warrant is immediately exercisable, at any time or from time to time on or after the date six months following the date of initial issuance of this Warrant (the "ISSUE DATE") and before 5:00 p.m., New York City time, on the fifth anniversary of the commencement of such five year period (the "EXERCISE PERIOD"). The Exercise Period shall automatically be extended by one (1) day for each day on which the Company does not have a number of shares of Common Stock reserved for issuance upon exercise hereof at least equal to the number of shares of Common Stock issuable upon exercise hereof.

3. CERTAIN AGREEMENTS OF THE COMPANY. The Company hereby covenants and agrees as follows:

(A) SHARES TO BE FULLY PAID. The Warrant Shares have been duly authorized and, when issued, delivered and paid for in the manner set forth in this Warrant, will be duly authorized, validly issued, fully paid and nonassessable and free and clear of all pledges, liens, and encumbrances imposed by the Company (other than restrictions on transfer under state and/or federal securities laws).

(B) RESERVATION OF SHARES. During the Exercise Period, the Company shall at all times have authorized, and reserved for the purpose of issuance upon exercise of this Warrant, a sufficient number of shares of Common Stock to provide for the exercise in full of this Warrant.

(C) LISTING. The Company acknowledges its obligations under Section 5.6 of the Stock Purchaser Agreement.

(D) CERTAIN ACTIONS PROHIBITED. The Company will not, by amendment of its charter or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities, or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms to be observed or performed by it hereunder, but will at all times in good faith assist in the carrying out of all the provisions of this Warrant and in the

taking of all such action as may reasonably be requested by the holder of this Warrant in order to protect the rights of the holder against impairment, consistent with the tenor and purpose of this Warrant. Without limiting the generality of the foregoing, the Company (i) will not increase the par value of any shares of Common Stock receivable upon the exercise of this Warrant above the Exercise Price then in effect, and (ii) will take all such actions as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable shares of Common Stock upon the exercise of this Warrant.

(E) SUCCESSORS AND ASSIGNS. This Warrant will be binding upon any entity succeeding to the Company by merger or consolidation.

4. ANTIDILUTION PROVISIONS. During the Exercise Period, the Exercise Price and the number of Warrant Shares issuable hereunder shall be subject to adjustment from time to time as provided in this Section 4.

(A) SUBDIVISION OR COMBINATION OF COMMON STOCK. If the Company, at any time during the Exercise Period, subdivides (by any stock split, stock dividend, recapitalization, reorganization, reclassification or otherwise) its shares of Common Stock into a greater number

3.

of shares, then, after the date of record for effecting such subdivision, the Exercise Price in effect immediately prior to such subdivision will be proportionately reduced. If the Company, at any time during the Exercise Period, combines (by reverse stock split, recapitalization, reorganization, reclassification or otherwise) its shares of Common Stock into a smaller number of shares, then, after the date of record for effecting such combination, the Exercise Price in effect immediately prior to such combination will be proportionately increased.

(B) ADJUSTMENT FOR CERTAIN DIVIDENDS AND DISTRIBUTIONS. In the event the Company at any time, or from time to time after the date of this Warrant shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in additional shares of Common Stock, then and in each such event the Exercise Price then in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the Exercise Price then in effect by a fraction:

(I) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(II) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution;

provided, however, that if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Exercise Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Exercise Price shall be adjusted pursuant to this paragraph as of the time of actual payment of such dividends or distributions.

(C) ADJUSTMENT IN NUMBER OF SHARES. Upon each adjustment of the Exercise Price pursuant to the provisions of Section 4(a) and (b), the number of shares of Common Stock issuable upon exercise of this Warrant at each such Exercise Price shall be adjusted to an amount calculated by multiplying a number equal to the Exercise Price in effect immediately prior to such adjustment by the number of shares of Common Stock issuable upon exercise of this Warrant at such Exercise Price immediately prior to such adjustment and dividing the product so obtained by the adjusted Exercise Price.

(D) ADJUSTMENT FOR REORGANIZATION. If there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Company in which the Common Stock is converted into or exchanged for securities, cash or other property (other than a transaction covered by

subsections 4(a), 4(b) or 4(e)) (collectively, a "REORGANIZATION"), then, following such Reorganization, the holder shall receive upon exercise hereof the kind and amount of securities, cash or other property which the holder would have been entitled to receive pursuant to such Reorganization if such holder had exercised this Warrant immediately prior to such Reorganization. In any such case, appropriate adjustment (as determined in good faith by

4.

the Company's Board of Directors shall be made in the application of the provisions set forth herein with respect to the rights and interests thereafter of the registered holder, to the end that the provisions set forth in this Section 4 (including provisions with respect to changes in and other adjustments of the Exercise Price) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities, cash or other property thereafter deliverable upon the exercise of this Warrant. The Company will not effect any consolidations, merger or sale or conveyance unless prior to the consummation thereof, the successor corporation (if other than the Company) assumes by written instrument the obligations under this Warrant and the obligations to deliver to the holder hereof such shares of stock, securities or assets as, in accordance with the foregoing provisions, the holder may be entitled to acquire.

(E) ADJUSTMENTS FOR OTHER DIVIDENDS AND DISTRIBUTIONS. In the event the Company at any time, or from time to time after the date of this Warrant shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Company (other than shares of Common Stock) or in cash or other property (other than regular cash dividends paid out of earnings or earned surplus, determined in accordance with generally accepted accounting principles), then and in each such event provision shall be made so that the holder shall receive upon exercise hereof, in addition to the number of shares of Common Stock issuable hereunder, the kind and amount of securities of the Company, cash or other property which the holder would have been entitled to receive had such holder exercised this Warrant immediately prior to the date of such event and had the holder thereafter, during the Exercise Period, retained any such securities receivable during such period, giving application to all adjustments called for during such period under this Section 4 with respect to the rights of the holder.

(F) NOTICE OF ADJUSTMENT. Promptly following the occurrence of any event which requires any adjustment of the Exercise Price, then, and in each such case, the Company shall give notice thereof to the holder hereof, which notice shall state the Exercise Price resulting from such adjustment and the increase or decrease in the number of Warrant Shares purchasable at such price upon exercise, setting forth in reasonable detail the method of calculation and the facts upon which such calculation is based. Such calculation shall be certified by the chief financial officer of the Company.

(G) NO FRACTIONAL SHARES. No fractional shares of Common Stock are to be issued upon the exercise of this Warrant, but the Company shall pay a cash adjustment in respect of any fractional share which would otherwise be issuable in an amount equal to the same fraction of the Market Price of a share of Common Stock on the date of such exercise.

(H) OTHER NOTICES. In case at any time:

(I) the Company shall declare any dividend upon the Common Stock payable in shares of stock of any class or make any other distribution (other than dividends or distributions payable in cash out of retained earnings consistent with the Company's past practices with respect to declaring dividends and making distributions) to the holders of the Common Stock;

5.

(II) the Company shall offer for subscription pro rata to the holders of the Common Stock any additional shares of stock of any class or other rights;

(III) there shall be any capital reorganization of the Company,

or reclassification of the Common Stock, or consolidation or merger of the Company with or into, or sale of all or substantially all of its assets to, another corporation or entity; or

(IV) there shall be a voluntary or involuntary dissolution, liquidation or winding up of the Company;

then, in each such case, the Company shall give to the holder of this Warrant (a) notice of the date or estimated date on which the books of the Company shall close or a record shall be taken for determining the holders of Common Stock entitled to receive any such dividend, distribution, or subscription rights or for determining the holders of Common Stock entitled to vote in respect of any such reorganization, reclassification, consolidation, merger, sale, dissolution, liquidation or winding-up at least ten (10) days prior to the record date or the date on which the Company's books are closed in respect thereto and (b) in the case of any such reorganization, reclassification, consolidation, merger, sale, dissolution, liquidation or winding-up, notice of the date (or, if not then known, a reasonable estimate thereof by the Company) when the same shall take place at least (20) days prior to such date. Such notice shall also specify the date on which the holders of Common Stock shall be entitled to receive such dividend, distribution, or subscription rights or to exchange their Common Stock for stock or other securities or property deliverable upon such reorganization, reclassification, consolidation, merger, sale, dissolution, liquidation, or winding-up, as the case may be. Failure to give any such notice or any defect therein shall not affect the validity of the proceedings referred to in clauses (i), (ii), (iii) and (iv) above. Notwithstanding the foregoing, the Company shall publicly disclose the substance of any notice delivered hereunder prior to delivery of such notice to the holder hereof.

(I) CERTAIN EVENTS. If, at any time during the Exercise Period, any event occurs of the type contemplated by the adjustment provisions of this Section 4 but not expressly provided for by such provisions, the Company will give notice of such event as provided in Section 4(h) hereof, and the Company's Board of Directors will make an appropriate adjustment in the Exercise Price and the number of shares of Common Stock acquirable upon exercise of this Warrant at each such Exercise Price so that the rights of the holder shall be neither enhanced nor diminished by such event.

(J) CERTAIN DEFINITIONS. "MARKET PRICE," as of any date, (i) means the average of the closing prices for the shares of Common Stock as reported on the American Stock Exchange by Bloomberg Financial Markets ("BLOOMBERG") for the ten (10) consecutive business days immediately preceding such date, or (ii) if the American Stock Exchange is not the principal trading market for the shares of Common Stock, the average of the reported closing prices reported by Bloomberg on the principal trading market for the Common Stock during the same period, or, if there is no closing price for such period, the last sale price reported by Bloomberg for such period, or (iii) if the foregoing do not apply, the last sale price of such security in the over-the-counter market on the pink sheets or bulletin board for such security as reported by Bloomberg, or if no sale price is so reported for such security, the last closing price of such security as reported by Bloomberg, or (iv) if market value cannot be calculated as of such

6.

date on any of the foregoing bases, the Market Price shall be deemed to be the amount most recently determined by the Company's Board of Directors or an authorized committee of the Company's Board of Directors to represent the fair market value per share of the Common Stock (including without limitation a determination for purposes of granting Common Stock options or issuing Common Stock under any plan, agreement or arrangement with employees of the Company). The manner of determining the Market Price of the Common Stock set forth in the foregoing definition shall apply with respect to any other security in respect of which a determination as to market value must be made hereunder.

5. ISSUE TAX. The issuance of certificates for Warrant Shares upon the exercise of this Warrant shall be made without charge to the holder of this Warrant or such shares for any issuance tax or other costs in respect thereof, provided that the Company shall not be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of any certificate in a name other than the holder of this Warrant.

6. NO RIGHTS OR LIABILITIES AS A STOCKHOLDER. This Warrant shall not

entitle the holder hereof to any voting rights or other rights as a stockholder of the Company. No provision of this Warrant, in the absence of affirmative action by the holder hereof to purchase Warrant Shares, and no mere enumeration herein of the rights or privileges of the holder hereof, shall give rise to any liability of such holder for the Exercise Price or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

7. TRANSFER, EXCHANGE, REDEMPTION AND REPLACEMENT OF WARRANT.

(A) RESTRICTION ON TRANSFER. This Warrant and the rights granted to the holder hereof are transferable, in whole or in part, upon surrender of this Warrant, together with a properly executed assignment in the form attached hereto, at the office or agency of the Company referred to in Section 7(e) below, provided, however, that any transfer or assignment shall be subject to the conditions and provisions of Section 8.1 of the Stock Purchase Agreement. Each transferee of this Warrant or any portion thereof shall be bound by the selling restrictions set forth in Section 8.1 of the Stock Purchase Agreement, which Section is incorporated herein by reference. Until due presentment for registration of transfer on the books of the Company, the Company may treat the registered holder hereof as the owner and holder hereof for all purposes, and the Company shall not be affected by any notice to the contrary. Notwithstanding anything to the contrary contained herein, the registration rights described in Section 8 hereof are assignable only in accordance with the provisions of the Registration Rights Agreement, dated as of March 24, 2006, by and between the Company and the other signatories thereto (the "REGISTRATION RIGHTS AGREEMENT").

(B) WARRANT EXCHANGEABLE FOR DIFFERENT DENOMINATIONS. This Warrant is exchangeable, upon the surrender hereof by the holder hereof at the office or agency of the Company referred to in Section 7(e) below, for a reasonable number of new Warrants of like tenor of different denominations representing in the aggregate the right to purchase the number of shares of Common Stock which may be purchased hereunder, each of such new Warrants to represent the right to purchase such number of shares (at the Exercise Price therefor) as shall be designated by the holder hereof at the time of such surrender.

7.

(C) REPLACEMENT OF WARRANT. Upon receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction, or mutilation of this Warrant and, in the case of any such loss, theft, or destruction, upon delivery of an indemnity agreement reasonably satisfactory in form and amount to the Company, or, in the case of any such mutilation, upon surrender and cancellation of this Warrant, the Company, at its expense, will execute and deliver, in lieu thereof, a new Warrant of like tenor.

(D) CANCELLATION; PAYMENT OF EXPENSES. Upon the surrender of this Warrant in connection with any transfer, exchange, or replacement as provided in this Section 7, this Warrant shall be promptly canceled by the Company. In the event that one party breaches this Warrant, such party shall pay all of the other party's costs and expenses (including reasonable legal fees) incurred by such other party in connection with the enforcement of such other party's rights hereunder.

(E) WARRANT REGISTER. The Company shall maintain, at its principal executive offices (or such other office or agency of the Company as it may designate by notice to the holder hereof), a register for this Warrant, in which the Company shall record the name and address of the person in whose name this Warrant has been issued, as well as the name and address of each transferee and each prior owner of this Warrant.

8. REGISTRATION RIGHTS. The initial holder of this Warrant (and certain assignees thereof) is entitled to the benefit of such registration rights in respect of the Warrant Shares as are set forth in the Registration Rights Agreement, including the right to assign such rights to certain assignees, to the extent permitted thereunder.

9. NOTICES. All notices and other communications from the Company to the registered holder of this Warrant in connection herewith shall be mailed by certified or registered mail, postage prepaid, or sent via a reputable overnight courier service to the address last furnished to the Company in writing by the Registered Holder. All notices and other communications from the registered

holder to the Company in connection herewith shall be mailed by certified or registered mail, postage prepaid, or sent via a reputable overnight courier service to the Company at its principal office set forth:

Idera Pharmaceuticals, Inc.
345 Vassar Street
Cambridge, MA 02139
Telephone: (617) 679-5500
Attn: Chief Executive Officer

with a copy simultaneously transmitted by like means to:

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109
Attn: Stuart Falber
Facsimile: (617) 526-5000

8.

If the Company should at any time change the location of its principal office to a place other than as set forth below, it shall give prompt written notice to the registered holder and thereafter all references in this Warrant to the location of its principal office at the particular time shall be as so specified in such notice. All such notices and communications shall be deemed delivered (i) upon delivery to the party to be notified, (ii) when received by confirmed facsimile, or (iii) one (1) business day after deposit with a nationally recognized overnight carrier, specifying next business day delivery, with written verification of receipt.

10. GOVERNING LAW; JURISDICTION. This Warrant shall be governed by and construed in accordance with the laws of the State of New York. The Company and the holder each irrevocably consents to the jurisdiction of the United States federal courts and state courts located in the State of New York, Borough of Manhattan, in any suit or proceeding based on or arising under this Warrant and irrevocably agrees that all claims in respect of such suit or proceeding may be determined in such courts. The Company and the holder each irrevocably waives any objection to the laying of venue and the defense of an inconvenient forum to the maintenance of such suit or proceeding. Each party further agrees that service of process upon such party mailed by certified or registered mail shall be deemed in every respect effective service of process upon such party in any such suit or proceeding. Nothing herein shall affect a party's right to serve process in any other manner permitted by law.

11. MISCELLANEOUS.

(A) AMENDMENT OR WAIVER. This Warrant and any provision hereof may only be amended, and any provision of this Warrant may only be waived, by an instrument in writing signed by the Company and the holder hereof.

(B) DESCRIPTIVE HEADINGS. The descriptive headings of the several Sections of this Warrant are inserted for purposes of reference only, and shall not affect the meaning or construction of any of the provisions hereof.

(C) TRADING DAY. For purposes of this Warrant, the term "trading day" means any day on which the principal United States securities exchange or trading market where the Common Stock is then listed is open for trading.

(D) REDEMPTION OF WARRANT BY COMPANY.

(I) At any time after March 24, 2010, provided that (x) all shares of Common Stock issuable upon exercise of the Warrants are then (A) authorized and reserved for issuance (B) registered under the Securities Act of 1933, as amended, for resale by the holders of the Warrants, and (C) eligible to be traded on a Permitted Exchange (as defined in the Stock Purchase Agreement), and (y) the volume weighted average of the closing prices of the Common Stock as reported on the applicable Permitted Exchange of the Common Stock exceeds 300% of the Exercise Price as in effect on the Issue Date for fifteen (15) or more consecutive trading days immediately prior to the delivery by the Company of a Redemption Notice (as defined below), the Company may elect, upon delivery of at least twenty (20) days' prior written notice (the "REDEMPTION NOTICE") to the holder hereof, to redeem all or a portion of the Warrants for a redemption

amount equal to the number of Warrant Shares issuable upon the exercise of all or a

9.

portion of this Warrant that is being redeemed multiplied by \$0.01 (the "REDEMPTION AMOUNT"). In the event the Company elects to redeem only some of the outstanding Warrants pursuant to this Section 11(d), such Warrants shall be redeemed pro rata among all the holders of the Warrants based upon the percentage of Warrants held by such holders against the total outstanding Warrants.

(II) The Company may not deliver a Notice of Redemption unless on or prior to the date of delivery of a Notice of Redemption, the Company shall have segregated on the books and records of the Company an amount of cash sufficient to pay all amounts to which holders of the Warrants that are being redeemed are entitled pursuant to Section 11(d)(i). Any Notice of Redemption delivered shall be irrevocable and shall be accompanied by a statement executed by a duly authorized officer of the Company.

(III) The Redemption Amount shall be paid to the holder within three (3) business days of the date of redemption set forth in the Notice of Redemption; provided, however, that the Company shall not be obligated to deliver any portion of the Redemption Amount until either this Warrant is delivered to the Company or the holder notifies the Company that the Warrant has been lost, stolen or destroyed and delivers the documentation in accordance with Section 7(c) hereof. In the event only a portion of this Warrant is being redeemed, the Company shall issue, at its expense, a new Warrant representing the number of shares with respect to which this Warrant shall not then have been redeemed or exercised.

(IV) Notwithstanding the delivery of a Redemption Notice, the holder may exercise all or a portion of this Warrant subject to such Redemption Notice by the delivery prior to the date of redemption set forth in such notice of an Exercise Agreement pursuant to the procedures set forth in Section 1.

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10.

IN WITNESS WHEREOF, the Company has caused this Warrant to be signed by its duly authorized officer.

IDERA PHARMACEUTICALS, INC.

By: _____
Name: _____
Title: _____

11.

FORM OF EXERCISE AGREEMENT

(TO BE EXECUTED BY THE HOLDER IN ORDER TO EXERCISE THE WARRANT)

To: Idera Pharmaceuticals, Inc.
345 Vassar Street
Cambridge, MA 92139
Telephone: (617) 679-5500
Attn: Chief Executive Officer

The undersigned hereby irrevocably exercises the right to purchase _____ shares of the Common Stock of Idera Pharmaceuticals, Inc., a

corporation organized under the laws of the State of Delaware (the "COMPANY"), evidenced by the attached Warrant, and herewith makes payment of the Exercise Price with respect to such shares in full, all in accordance with the conditions and provisions of said Warrant.

The undersigned agrees not to offer, sell, transfer or otherwise dispose of any Common Stock obtained on exercise of the Warrant, except under circumstances that will not result in a violation of the Securities Act of 1933, as amended, or any state securities laws.

[] The undersigned requests that the Company cause its transfer agent to electronically transmit the Common Stock issuable pursuant to this Exercise Agreement to the account of the undersigned or its nominee (which is _____) with DTC through its Deposit Withdrawal Agent Commission System ("DTC TRANSFER"), provided that such transfer agent participates in the DTC Fast Automated Securities Transfer program and the certificates are to be delivered without a legend.

[] In lieu of receiving the shares of Common Stock issuable pursuant to this Exercise Agreement by way of DTC Transfer, the undersigned hereby requests that the Company cause its transfer agent to issue and deliver to the undersigned physical certificates representing such shares of Common Stock.

The undersigned requests that a Warrant representing any unexercised portion hereof be issued, pursuant to the Warrant, in the name of the Holder and delivered to the undersigned at the address set forth below:

Dated: _____
Signature of Holder
Name of Holder (Print)
Address:

FORM OF ASSIGNMENT

FOR VALUE RECEIVED, the undersigned hereby sells, assigns, and transfers all the rights of the undersigned under the within Warrant, with respect to the number of shares of Common Stock covered thereby set forth hereinbelow, to:

Name of Assignee Address No. of Shares
----- ----- -----

, and hereby irrevocably constitutes and appoints _____ as agent and attorney-in-fact to transfer said Warrant on the books of the within-named corporation, with full power of substitution in the premises.

Dated: _____, ____

In the presence of

Name:

Signature: _____

Title of Signing Officer or Agent (if any):

Address: -----

Note: The above signature should correspond exactly with the name on the face of the within Warrant.

COMMON STOCK PURCHASE AGREEMENT

This COMMON STOCK PURCHASE AGREEMENT (this "AGREEMENT") is entered into as of the 24th day of March, 2006, by and between Biotech Shares Ltd., an entity organized and existing under the laws of the Isle of Man (the "INVESTOR"), and Idera Pharmaceuticals, Inc., a corporation organized and existing under the laws of the State of Delaware (the "COMPANY").

WHEREAS, the Investor and the Company (the "PARTIES") desire that, upon the terms and subject to the conditions and limitations set forth herein, the Company may issue and sell to the Investor, from time to time as provided herein, and the Investor shall purchase from the Company, up to US\$9,750,000 of shares of Common Stock (as defined below) of the Company;

WHEREAS, in consideration for the Investor's execution and delivery of, and its performance of its obligations under, this Agreement, the Company is concurrently with the execution of this Agreement issuing to the Investor warrants to purchase 6,093,750 shares of Common Stock at an exercise price of \$0.74 per share in the form of Exhibit A hereto, which warrants shall be exercisable at any time during the five-year period commencing September 24, 2006 (the "WARRANTS");

WHEREAS, the Parties hereto are concurrently entering into a Registration Rights Agreement in the form of Exhibit B hereto (the "REGISTRATION RIGHTS AGREEMENT") pursuant to which the Company shall register the Common Stock issued and sold to the Investor under this Agreement and issuable pursuant to the Warrants upon the terms and subject to the conditions set forth therein; and

WHEREAS, to assure payment of the purchase price for the Common Stock and the delivery of the certificates for the Common Stock purchased by the Investor when and if the Company elects in its sole discretion to sell such Common Stock to the Investor, the Investor is causing concurrently with the execution of this Agreement First National Bank of Lebanon (the "INVESTOR BANK") to issue a letter of credit through JP Morgan Chase Bank, N.A. (the "CONFIRMING BANK") in the form attached hereto as Exhibit C (the "LOC") on behalf of the Company.

NOW, THEREFORE, the Parties hereto agree as follows:

1. PURCHASE OBLIGATION. The Investor, intending to be legally bound, hereby irrevocably agrees to purchase from the Company shares of Common Stock with an aggregate purchase price of up to US\$9,750,000 (the "MAXIMUM PURCHASE PRICE"), if and when the Company exercises its right to sell to the Investor such shares of Common Stock in accordance with Section 3 of this Agreement.

2. INITIAL CLOSING

(a) The closing of the execution and delivery of this Agreement shall take place at the offices of Wilmer Cutler Pickering Hale and Dorr LLP, 60 State Street, Boston, Massachusetts at 10:00 a.m. local time on the date of this Agreement (the "CLOSING").

(b) At the Closing:

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(i) The Company and the Investor shall execute and deliver this Agreement;

(ii) The Company and the Investor shall execute and deliver the Registration Rights Agreement;

(iii) The Investor shall cause the delivery of the LOC by the Investor Bank and the Confirming Bank (the "Banks"); and

(iv) The Company shall execute and deliver to the Investor the Warrants.

3. SUBSEQUENT CLOSINGS

(a) At any time, on or after June 24, 2006 and prior to December 15, 2006, the Company, may, in its sole discretion, deliver to the Investor one or more written notices in the form attached hereto as Exhibit D (each, a "PURCHASE NOTICE") specifying

(i) The dollar amount of Common Stock (with respect to each Purchase Notice, the "PURCHASE AMOUNT") it elects to sell to the Investor on the closing date for such sale;

(ii) The closing date for such sale (which date shall be 15 days after the effectiveness of the Purchase Notice);

(iii) The number of shares of Common Stock to be issued on such closing date; and

(iv) The price per share of Common Stock used to calculate the number of shares of Common Stock to be issued on such closing date.

If the Purchase Notice involves a Purchase Amount, which when aggregated with the Purchase Amount of Common Stock previously sold to the Investor hereunder exceeds \$2,500,000, the Company shall confirm in such Purchase Notice that a registration statement (the "PRE-ISSUANCE REGISTRATION STATEMENT") covering the resale of the shares of Common Stock to be issued on such closing date has been declared and is effective and that the certificates representing such shares shall not bear a restricted securities legend.

Notwithstanding the foregoing,

(A) the Company may not issue more than three Purchase Notices;

(B) the closing date for a Purchase Notice may not occur within 45 days of the closing date for another Purchase Notice hereunder;

(C) the Purchase Amount that the Company may elect to sell to the Investor under a single Purchase Notice on any closing date shall not exceed \$4,000,000;

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(D) the aggregate Purchase Amount that the Company may elect to sell to the Investor under all Purchase Notices may not exceed the Maximum Purchase Price; and

(E) any Purchase Amount not sold under this Agreement on or before December 31, 2006 will lapse if not used.

(b) The number of shares of Common Stock to be issued in connection with a Purchase Notice shall be determined by dividing (1) the Purchase Amount specified in the Purchase Notice by (ii) the greater of (A) \$0.64 and (B) 80% of the volume-weighted average of the Closing Prices (as defined below) of the Common Stock for the five consecutive Trading Days (as defined below) immediately preceding the date that the Company sends such Purchase Notice to the Investor.

(c) The Investor agrees that payment of the full Purchase Amount with respect to a Purchase Notice shall be made on the date specified in the Purchase Notice (the "PAYMENT DATE") through the Letter of Credit. Upon receipt by the Confirming Bank of the information required by the Letter of Credit, the Confirming Bank shall wire to the Company's designated account on the Payment Date the Purchase Amount specified by the Company.

(d) Notwithstanding the foregoing, the Investor shall have no obligation hereunder to purchase any shares of Common Stock if the Purchase Amount of such shares, when aggregated with the Purchase Amount of Common Stock previously sold to the Investor under this Agreement, exceeds \$2,500,000 unless the Pre-Issuance Registration Statement has been declared and is effective and the certificates representing such shares will not bear a restricted securities legend.

(e) The Investor covenants that during period from the date hereof until the earlier of (i) December 31, 2006 and (ii) the date the Company is no

longer entitled to sell any additional shares of Common Stock to the Investor under this Agreement (because the Company has sold the full US\$9,750,000 contemplated by this Agreement or otherwise), neither the Investor nor any of its affiliates nor any entity managed or controlled by the Investor will ever enter into or execute or cause any person to enter into or execute any "short sale" of any shares of Common Stock.

(f) Certain Definitions.

(i) "CLOSING PRICE" of the Common Stock on any date means the last reported sales price or, in case no such reported sale takes place on such date, the average of the reported closing bid and ask prices on the principal trading market for the Common Stock. If no such prices are available, the Closing Price shall be the fair value of one share of Common Stock as determined in good faith by the Board of Directors.

(ii) "COMMON STOCK" means the common stock, US\$0.001 par value, of the Company as it exists on the date of this Agreement, and any shares of any class or classes of capital stock of the Company resulting from any reclassification or reclassifications thereof and which have no preference in respect of dividends or of amounts payable in the event of any voluntary or involuntary liquidation, dissolution or winding-up of the Company and which are not subject to redemption by the Company.

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(iii) "TRADING DAY" means, with respect to any security, each Monday, Tuesday, Wednesday, Thursday and Friday, other than any day on which securities are not generally traded on the principal exchange or market on which such security is traded.

4. REPRESENTATIONS AND WARRANTIES. The Investor hereby acknowledges, represents, warrants and agrees as follows:

(a) The Investor understands that the offering and sale outside the United States of the Common Stock, the Warrants and the Common Stock issuable upon exercise of the Warrants (the "OFFERING ") is intended to be exempt from registration under the U.S. Securities Act of 1933, as amended (the "SECURITIES ACT"), in accordance with Regulation S under the Securities Act ("REGULATION S"), based, in part, upon the representations, warranties and agreements of the Investor contained in this Agreement and of the shareholders of the Investor contained in the representation letters that the Company may obtain from time to time from the shareholders of the Investor;

(b) The Investor and the Investor's attorney, accountant, Investor representative and/or tax advisor, if any (collectively, the "ADVISORS"), have received all documents requested by the Investor and the Investor and its Advisors, if any, have carefully reviewed them and understand the information contained therein prior to the execution of this Agreement;

(c) None of the U.S. Securities and Exchange Commission, any state securities commission or any other regulatory authority (foreign or otherwise) has approved the Common Stock, the Warrants or any of the shares of Common Stock issuable upon exercise of the Warrants, or passed upon or endorsed the merits of the Offering;

(d) The Investor and the Advisors, if any, have had a reasonable opportunity to ask questions of and receive answers from a person or persons acting on behalf of the Company concerning the Offering and the business, financial condition, results of operations and prospects of the Company, and all such questions have been answered to the full satisfaction of the Investor and the Advisors, if any;

(e) The Investor has taken no action which would give rise to any claim by any person against the Company for brokerage commissions, finders' fees or the like relating to this Agreement or the transactions contemplated hereby;

(f) The Investor, either alone or together with its Advisors, if any, have such knowledge and experience in financial, tax, and business matters, and, in particular, investments in securities, so as to enable them to utilize the information made available to them in connection with the Offering to evaluate the merits and risks of an investment in the Common Stock, the Warrants and the

Company and to make an informed investment decision with respect thereto;

(g) The Investor is not relying on the Company, or any of its agents or any of their respective employees or agents with respect to the legal, tax, economic and related considerations of an investment in the Common Stock, the Warrants or the shares of Common Stock issuable upon exercise of the Warrants, and the Investor has relied on the advice of, or has consulted with, only its own Advisors;

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(h) The Investor is acquiring the Common Stock, the Warrants and the Common Stock issuable upon exercise of the Warrants solely for such Investor's own account for investment and not with a view to resale or distribution thereof, in whole or in part. Except for arrangements with shareholders of the Investor as provided in the organizational documents of the Investor, the Investor has no agreement or arrangement, formal or informal, with any person to sell or transfer all or any part of the Common Stock, the Warrants or the shares of Common Stock issuable upon exercise of the Warrants, and the Investor has no plans to enter into any such agreement or arrangement;

(i) The purchase of the Common Stock, the Warrants and the Common Stock issuable upon exercise of the Warrants represents high risk capital and the Investor is able to afford an investment in a speculative venture having the risks and objectives of the Company. The Investor must bear the substantial economic risks of the investment in the Common Stock, the Warrants and the Common Stock issuable upon exercise of the Warrants indefinitely because none of the Common Stock, the Warrants or the shares of Common Stock issuable upon exercise of the Warrants, may be sold, hypothecated or otherwise disposed of unless (i) such securities are registered under the Securities Act, (ii) an exemption from such registration is available in a transaction not subject to the registration requirements of the Securities Act or (iii) in accordance with Regulation S. The Company has agreed to file a registration statement to register the resale of the shares of Common Stock to be sold pursuant to this Agreement and the shares of Common Stock issuable upon exercise of the Warrants under the Securities Act pursuant to the Registration Rights Agreement and has agreed in Section 3(a) and 3(d) that it cannot issue and sell more than \$2,500,000 of Common Stock to the Investor hereunder unless the shares of Common Stock to be issued to the Investor have been registered for resale pursuant to the Pre-Issuance Registration Statement;

(j) The Investor has adequate means of providing for such Investor's current financial needs and foreseeable contingencies and has no need for liquidity of the investment in the Common Stock, the Warrants and the shares of Common Stock issuable upon exercise of the Warrants for an indefinite period of time;

(k) The Investor is aware that an investment in the Common Stock, the Warrants and the Common Stock issuable upon exercise of the Warrants involves a number of very significant risks and has carefully read and considered the matters set forth under the caption "Risks Factors" and other risk factors of the Company that are referenced in the most recent Quarterly Report on Form 10-Q filed by the Company with the SEC;

(l) The Investor is not a U.S. person (as defined in Securities Act Rule 902(k)) and is not acquiring the Common Stock, the Warrants or the shares of Common Stock issuable upon exercise of the Warrants, for the account or benefit of any U.S. person. None of the Investor's shareholders are a U.S. person.

(m) The Investor represents it is duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization; the consummation of the transactions contemplated hereby is authorized by, and will not result in a violation of any applicable law or its charter or other organizational documents; it has full power and authority to execute and deliver this Agreement and all other related agreements or certificates and to carry out the provisions hereof and thereof and to purchase and hold the Common Stock, the Warrants and the Common Stock issuable upon exercise of the Warrants; the execution and delivery of this

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Agreement has been duly authorized by all necessary action; and this Agreement has been duly executed and delivered on behalf of such entity and is a legal, valid and binding obligation of such entity. The execution and delivery of this Agreement will not violate or be in conflict with any order, judgment, injunction, agreement or controlling document to which the Investor is a party or by which it is bound;

(n) The Investor represents to the Company that any information which the Investor has heretofore furnished or is furnishing herewith to the Company is complete and accurate and may be relied upon by the Company in determining the availability of an exemption from registration under U.S. Federal securities laws and applicable laws of states and foreign jurisdictions in connection with the Offering;

(o) Within five days after receipt of a request from the Company, the Investor will provide such information and deliver such documents as may reasonably be necessary to comply with any and all laws and ordinances to which the Company is subject, including all information regarding the Investor that the Company requests in connection with the registration statements to be filed pursuant to the Registration Rights Agreement;

(p) In evaluating its investment hereby in the Company, the Investor has not relied upon any representation or other information (oral or written) provided to the Investor or its Advisors by or on behalf of the Company other than the information contained in the Company's filings with the U.S. Securities and Exchange Commission;

(q) The Investor acknowledges that the Company will not deliver a Purchase Notice and seek to issue and sell shares of Common Stock hereunder until such time as the number of authorized shares of Common Stock of the Company is increased and that the Company plans to seek stockholder approval of an increase in the number of authorized shares of Common Stock at its next annual meeting of stockholders;

(r) As of the date hereof, none of the Common Stock to be issued hereunder, Warrants or the shares of Common Stock issuable upon exercise of the Warrants have been registered under The U.S. Securities Act of 1933, as amended, or under any applicable securities laws of any state or foreign jurisdiction and such securities are being offered and sold in reliance on exemptions from the registration requirements of said Act and such laws. The securities are subject to restrictions on transferability and resale and may not be transferred or resold except as permitted under said Act and such laws pursuant to registration or exemption therefrom;

(s) Each certificate representing shares of Common Stock or Common Stock issuable upon exercise of the Warrants, and the Warrants shall bear a legend substantially in the following form:

"These securities have not been registered under the Securities Act of 1933. They may not be offered or transferred by sale, assignment, pledge or otherwise unless (i) a registration statement for the securities under the Securities Act of 1933 is in effect or (ii) the corporation has received an opinion of counsel, which opinion is satisfactory to the corporation, to the effect that such registration is not required under the Securities Act of 1933 or (iii) such offer or transfer is made in accordance

with the provisions of Regulation S under the Securities Act of 1933. Hedging transactions involving these securities may not be conducted unless in compliance with the Securities Act of 1933."

Notwithstanding the foregoing, no certificate representing shares of Common Stock issued pursuant to this Agreement following the effectiveness of the Pre-Issuance Registration Statement which are covered by such Registration Statement shall bear such legend without the prior written consent of the Investor.

(t) The Investor hereby confirms, and within five days after receipt of a request from the Company, shall confirm, that in the event it proposes to transfer any Common Stock issued to it under Section 3 or upon exercise of the Warrants it shall comply with all requirements of the Securities Act applicable to such transfer, including without limitation the requirement of delivering a current prospectus in a timely manner in connection with the transfer.

5. IRREVOCABILITY; BINDING EFFECT. The Investor hereby acknowledges and agrees that the agreements hereunder, including the agreement to purchase shares of Common Stock if and when the Company exercises its right to sell to the Investor such shares of Common Stock in accordance with Section 3, are irrevocable by the Investor, except as required by applicable law, and that this Agreement shall be binding upon and inure to the benefit of the Parties and their administrators, successors, legal representatives, and permitted assigns.

6. MODIFICATION. Except as expressly permitted herein, this Agreement shall not be modified or waived except by an instrument in writing signed by the Party against whom any such modification or waiver is sought. The Company may terminate this Agreement at any time, without consent of the Investor, without penalty.

7. NOTICES. Any notice or other communication required or permitted to be given hereunder shall be in writing and shall be mailed by certified mail, return receipt requested, or by a reputable overnight delivery service or shall be delivered against receipt to the Party to whom it is to be given (a) if to the Company, at the address set forth above, or (b) if to the Investor, at the address set forth on the signature page hereof (or, in either case, to such other address as the Party shall have furnished in writing in accordance with the provisions of this Section 7). Any notice or other communication given by certified mail shall be deemed given at the time of certification thereof and any notice or other communication given by overnight delivery service shall be deemed given two business days after deposit with the courier; provided, however, that a notice changing a Party's address shall be deemed given at the time of receipt thereof.

8. ASSIGNABILITY. This Agreement and the rights, interests and obligations hereunder are not transferable or assignable by the Investor.

9. APPLICABLE LAW. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts in the United States without reference to the principles thereof relating to the conflict of laws.

10. BLUE SKY QUALIFICATION. The purchase of the Common Stock and the Warrants under this Agreement is expressly conditioned upon the exemption from qualification of the offer and sale of the Common Stock and Warrants from applicable U.S. Federal securities laws and the

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applicable laws of states and foreign jurisdictions. The Company shall not be required to qualify as a foreign corporation or execute a general consent to service of process in any jurisdiction and, should qualification or execution of a general consent be necessary, the Company shall be released from any and all obligations to maintain its offer, and may rescind any sale contracted, in the jurisdiction.

11. USE OF PRONOUNS. All pronouns and any variations thereof used herein shall be deemed to refer to the masculine, feminine, neuter, singular or plural as the identity of the person or persons referred to may require.

12. CONFIDENTIALITY. The Investor acknowledges and agrees that any information or data the Investor has acquired from or about the Company, not otherwise properly in the public domain, was received in confidence. The Investor agrees not to divulge, communicate or disclose, except as may be required by law or for the performance of this Agreement, or use to the detriment of the Company or for the benefit of any other person or persons, or misuse in any way, any confidential information of the Company, including any scientific, technical, trade or business secrets of the Company and any scientific, technical, trade or business materials that are treated by the Company as confidential or proprietary, including, but not limited to, ideas,

discoveries, inventions, developments and improvements belonging to the Company and confidential information obtained by or given to the Company about or belonging to third parties.

13. MISCELLANEOUS.

(a) This Agreement, together with the Registration Rights Agreement and the Warrants, constitute the entire agreement between the Investor and the Company with respect to the subject matter hereof, except for any confidential disclosure agreement between the Investor and the Company, and supersede all prior oral or written agreements and understandings, if any, between the Parties relating to the subject matter hereof, except for any confidential disclosure agreement between the Investor and the Company.

(b) The Investor's representations and warranties made in this Agreement shall survive the execution and delivery hereof and delivery of the Common Stock, the Warrants and the Common Stock issuable upon exercise of the Warrants.

(c) Each of the Parties hereto shall pay its own fees and expenses (including the fees of any attorneys, accountants, appraisers or others engaged by such Party) in connection with this Agreement and the transactions contemplated hereby whether or not the transactions contemplated hereby are consummated.

(d) This Agreement may be executed in one or more counterparts each of which shall be deemed an original, but all of which shall together constitute one and the same instrument.

(e) Each provision of this Agreement shall be considered separable and, if for any reason any provision or provisions hereof are determined to be invalid or contrary to applicable law, such invalidity or illegality shall not impair the operation of or affect the remaining portions of this Agreement.

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(f) Paragraph titles are for descriptive purposes only and shall not control or alter the meaning of this Agreement as set forth in the text.

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IN WITNESS WHEREOF, the Parties have caused this Common Stock Purchase Agreement to be duly executed as of the date first set forth above..

IDERA PHARMACEUTICALS, INC.

By: /s/ Sudhir Agrawal

Name: Sudhir Agrawal
Title: Chief Executive Officer

BIOTECH SHARES LTD.

By: /s/ Oussama Salam

Name: Oussama Salam
Title: Director

Address: St. James's Chambers
64A Athol Street
Isle of Man IM1 1JE

IDERA PHARMACEUTICALS, INC.
345 Vassar Street
Cambridge, Massachusetts 02139

March 24, 2006

Youssef El-Zein
Starco Center
Omar Daouk Street
Bloc B, 1st Floor
Beirut Central District
Beirut 2020-3313
Lebanon

Dear Youssef:

This letter sets forth the terms and conditions of the engagement of Youssef El-Zein (the "Advisor") as a non-exclusive financial advisor to Idera Pharmaceuticals, Inc. (the "Company") in connection with the arrangement and negotiation of an equity vehicle under which the Company may issue up to \$9,750,000 of its common stock (the "Transaction"). The Advisor, in his capacity as financial advisor to the Company, has identified and will identify potential non-U.S. investors and, subject to the Company's prior written approval, has contacted or will contact such potential investors on behalf of the Company and has provided and will provide such other services in connection with the Transaction as the Company may from time to time reasonably request.

The Advisor has not contacted or initiated and shall not contact or initiate any discussions with any party or prospective investor without first identifying such party or prospective investor to the Company and obtaining the Company's prior written approval to make such contact or initiate such discussions (such parties and prospective investors that are approved by the Company are referred to herein as the "Approved Investors"). The Advisor shall not have authority under this letter to bind the Company in any way to any party, and nothing contained in this letter shall require the Company to accept the terms of any proposal or undertake any other action that would result in the receipt by the Advisor of a fee hereunder.

The Advisor represents, warrants and covenants to the Company that:

(a) He has not offered, offered to sell or sold and shall not offer, offer to sell or sell any securities of the Company on the basis of any written communications or documents relating to the Company or its business other than written materials furnished by the Company or previously approved by the Company in writing, including without limitation the Company's filings under the Securities Exchange Act of 1934, as amended (the "Offering Materials"). No communications (whether oral or written) or documents

relating to the Company or its business made or delivered by the Advisor have been or shall be inconsistent with the Offering Materials.

(b) He has not offered, offered to sell or sold and shall not offer, offer to sell or sell any securities of the Company to any investor in the United States or to any United States person outside the United States.

(c) He has not engaged and shall not engage in any form of general solicitation or general advertising which is prohibited by Regulation D ("Regulation D") promulgated under the Securities Act of 1933, as amended (the "Securities Act"), in connection with the Transaction or any directed selling efforts in the United States (as such term is defined in Regulation S ("Regulation S") promulgated under the Securities Act). In addition, such Advisor has not taken and shall not take any action that might reasonably be expected to jeopardize the availability for the Transaction of the exemption from registration

provided by Regulation S or the qualification of securities of the Company for offer and sale under any applicable foreign securities laws.

(d) He shall make reasonable inquiry to determine that each investor is acquiring the securities of the Company for his or its own account for investment.

(e) In the performance of his services hereunder, he has complied and shall comply with the U.S. securities laws and the securities laws in effect in any jurisdiction in which securities of the Company are offered by it and the rules, regulations and orders of any securities administrator existing or adopted thereunder.

(f) He shall not receive, directly or indirectly, any remuneration in respect of any issuance and sale by the Company of its securities in the United States or to any U.S. person.

In the event a Transaction with Approved Investors is completed during the term of this letter, the Company will (i) pay the Advisor a fee in an amount of \$262,500 and (ii) issue to the Advisor three-year warrants (the "Warrant") (in a form containing antidilution protection for stock splits and other similar events and other customary provisions as agreed by the Company and the Advisor) to purchase 1,155,076 shares of common stock of the Company (the "Warrant Shares") at an exercise price per share equal to \$0.96. The Warrants shall be exercisable for cash only and following the second anniversary of the date of issuance of the Warrants shall be redeemable by the Company for \$.01 per share following notice to the Advisor if the closing sales prices of the common stock on each day of a 15 day consecutive trading day period ending within 30 days prior to the notice is greater than or equals 250% of the exercise price of the Warrants.

The Advisor recognizes that the Company is subject to the rules of the American Stock Exchange, including Section 711 of the American Stock Exchange Company Guide. Accordingly, the Advisor agrees that notwithstanding the foregoing the Company shall have no obligation hereunder to pay any fees or issue any Warrants to the Advisor that would not comply

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with the rules of the American Stock Exchange or that would require the Company to obtain stockholder approval. In the event of such a conflict, the Company and the Advisor agree to negotiate in good faith new compensation terms for the Advisor.

In addition to any fees payable to the Advisor under the terms of this letter, the Company agrees to reimburse the Advisor for his reasonable out-of-pocket expenses and the reasonable out-of-pocket expenses of the investor in the Transaction, documented in reasonable detail, and incurred in connection with the Advisor's activities under this letter or the Transaction; provided that the Company shall not be required to reimburse more than \$50,000 in expenses hereunder, in the aggregate.

The Company agrees to indemnify the Advisor and his affiliates and agents (each such person being an "Indemnified Party") from and against any and all losses, claims, damages and liabilities, joint or several, to which such Indemnified Party may become subject under any applicable federal or state law, or otherwise, related to or arising out of the engagement of the Advisor pursuant to, and the performance by the Advisor of the services contemplated by, this letter and will, subject to the limitation set forth below, reimburse any Indemnified Party for all expenses (including reasonable counsel fees and expenses, whether incurred in connection with third party claims or direct claims against the Company) as they are incurred in connection with the investigation of, preparation for or defense of any pending or threatened claim or any action or proceeding arising therefrom, whether or not such Indemnified Party is a party. The Company will not be liable under the foregoing indemnification provision to the extent that any loss, claim, damage, liability or expense is found in a final judgment by a court of competent jurisdiction to have resulted from an Indemnified Party's breach of this letter, bad faith, willful misfeasance, gross negligence or reckless disregard of its obligations or duties. No Indemnified Party shall settle any claim for which indemnification may be sought by him or it hereunder without the prior written consent of the

Company. The Company's obligations to indemnify pursuant hereto shall be limited to the Indemnified Party's actual liabilities, losses, damages or expenses incurred and shall not include any consequential damages or damages for loss of business or reputation.

The Company will have the right, at its option, to assume the defense of any litigation or proceeding in respect of which indemnity may be sought hereunder, including the employment of counsel reasonably satisfactory to the Advisor (the Advisor hereby agrees that Wilmer Cutler Pickering Hale and Dorr LLP is satisfactory to the Advisor) and the payment of the fees and expenses of such counsel, in which event, except as provided below, the Company shall not be liable for the fees and expenses of any other counsel retained by any Indemnified Person in connection with such litigation or proceeding. In any such litigation or proceeding the defense of which the Company shall have so assumed, any Indemnified Person shall have the right to participate in such litigation or proceeding and to retain its own counsel.

Upon receipt by an Indemnified Person of actual notice of a claim, action or proceeding against such Indemnified Person in respect of which indemnity may be sought hereunder, such Indemnified Person shall promptly notify the Company with respect thereto. In addition, an Indemnified Person shall promptly notify the Company after any action is commenced (by the

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way of service with a summons or other legal process giving information as to the nature and basis of the claim) against such Indemnified Person in respect of which indemnity may be sought hereunder. In any event, failure to notify the Company shall not relieve the Company from any liability which the Company may have on account of this indemnity or otherwise, except to the extent the Company shall have been prejudiced by such failure.

In the course of his services, the Advisor has had and will have access to Confidential Information (as defined below) concerning the Company. The Advisor agrees that all Confidential Information has been and will be treated by the Advisor as confidential in all respects. The term "Confidential Information" shall mean all information, whether written or oral, which is disclosed by the Company or its affiliates, agents or representatives to the Advisor or is otherwise learned of by the Advisor in connection with his role as financial advisor to the Company which information is not in the public domain, but shall not include: (i) information which, prior to disclosure to the Advisor, was already in the Advisor's possession and was not otherwise subject to an obligation of confidentiality; (ii) information which is publicly disclosed other than by the Advisor in violation of this letter; (iii) information which is obtained by the Advisor from a third party that (x) the Advisor does not know to have violated, or to have obtained such information in violation of, any obligation to the Company or its affiliates with respect to such information, and (y) does not require the Advisor to refrain from disclosing such information; and (iv) information which is required to be disclosed by the Advisor or his outside counsel under compulsion of law (whether by oral question, interrogatory, subpoena, civil investigative demand or otherwise) or by order of any court or governmental or regulatory body to whose supervisory authority the Advisor is subject; provided that, in such circumstance, the Advisor will give the Company prior written notice of such disclosure and cooperate with the Company to minimize the scope of any such disclosure. The Advisor's obligation under this paragraph shall survive the expiration, termination or completion of this letter or the Advisor's engagement hereunder.

The Advisor's engagement hereunder and this letter shall terminate on the earlier of (i) March 24, 2006 or (ii) written notice of termination by the Company to the Advisor or by the Advisor to the Company, it being understood that the provisions relating to confidentiality and indemnification will survive any such termination.

This letter shall be construed and interpreted in accordance with the laws of the Commonwealth of Massachusetts. This letter constitutes the entire agreement of the parties with respect to the subject matter hereof.

If the foregoing is in accordance with your understanding, please confirm acceptance by signing and returning to us the duplicate of this letter attached herewith.

Sincerely,

IDERA PHARMACEUTICALS, INC.

By: /s/ Sudhir Agrawal

Name: Sudhir Agrawal

Title: Chief Executive Officer

AGREED AND ACCEPTED AS OF
THE DATE SET FORTH ABOVE BY:

By: /s/ Youssef El-Zein

Youssef El-Zein

IDERA PHARMACEUTICALS, INC.

REGISTRATION RIGHTS AGREEMENT

dated as of March 24, 2006

IDERA PHARMACEUTICALS, INC.

REGISTRATION RIGHTS AGREEMENT

This Registration Rights Agreement (this "AGREEMENT") is entered into as of March 24, 2006 by and among Idera Pharmaceuticals, Inc., a Delaware corporation (the "COMPANY"), Biotech Shares Ltd. (the "INVESTOR") and Youssef El-Zein (the "AGENT").

WHEREAS, the Company is conducting an offering (the "OFFERING") of up to \$9,750,000 of shares of the Company's common stock, \$0.001 par value per share (the "COMMON STOCK"), pursuant to the Common Stock Purchase Agreement dated as of March 24, 2006, by and between the Investor and the Company (the "PURCHASE AGREEMENT");

WHEREAS, pursuant to the Purchase Agreement, the Company has agreed to issue to the Investor warrants to purchase Common Stock of the Company (the "INVESTOR WARRANTS");

WHEREAS, pursuant to the Purchase Agreement, the Company may, in its sole discretion, issue up to three Purchase Notices (as defined in the Purchase Agreement) pursuant to which the Company will issue and sell shares of Common Stock to the Investor;

WHEREAS, in connection with the Offering, the Company has engaged the Agent and may issue to the Agent warrants to purchase shares of Common Stock (the "AGENT WARRANTS"); and

WHEREAS, to induce the Investor to enter into the Purchase Agreement and the Agent to assist the Company in the Offering, the Company has agreed to provide registration rights under the Securities Act (as defined below) and applicable state securities laws, as described below;

NOW, THEREFORE, in consideration of the promises and the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company, the Agent and the Investor hereby agree as follows:

1. Certain Definitions. As used in this Agreement, the following terms shall have the following meanings:

(a) "Business Day" means any day other than Saturday, Sunday or any other day on which commercial banks in The City of New York or in Boston, Massachusetts are required by law to remain closed.

(b) "Commission" means the Securities and Exchange Commission, or any other federal agency at the time administering the Securities Act.

(c) "Exchange Act" means the Securities Exchange Act of 1934, as amended, or any successor federal statute, and the rules and regulations of the Commission issued under such Act, as they each may, from time to time, be in effect.

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(d) "Indemnified Party" means a party entitled to indemnification pursuant to Section 7.

(e) "Indemnifying Party" means a party obligated to provide indemnification pursuant to Section 7.

(f) "Person" means an individual, a limited liability company, a partnership, a joint venture, a corporation, a trust, an unincorporated organization or association and governmental entity or any department or agency thereof.

(g) "Registrable Securities" means (i) the shares of Common Stock issued or issuable upon exercise of the Investor Warrants and the Agent Warrants, (ii) the shares of Common Stock issued or issuable to the Investor pursuant to Section 3 of the Purchase Agreement, and (iii) any other shares of Common Stock issued in respect of such shares (as a result of a stock split, stock dividend, reclassification, recapitalization or other similar transaction affecting the Common Stock); provided, however, that shares of Common Stock that are Registrable Securities shall cease to be Registrable Securities upon the earliest of (A) the date that such shares are eligible to be sold under Rule 144 of the Securities Act, without restriction by the volume limitations of Rule 144(e) of the Securities Act, (B) the date that such shares are sold (I) pursuant to a registration statement, (II) to or through a broker, dealer or underwriter in a public securities transaction and/or (III) in a transaction exempt from the registration and prospectus delivery requirements of the Securities Act such that all transfer restrictions and restrictive legends with respect thereto, if any, are removed upon the consummation of such sale, or (C) any sale or transfer to any Person which by virtue of Section 9 of this Agreement is not entitled to the rights provided by this Agreement. Wherever reference is made in this Agreement to a request or consent of holders of a certain percentage of Registrable Securities, the determination of such percentage shall include shares of Common Stock issuable upon exercise of the Agent Warrants and the Investor Warrants, in each case to the extent any such warrants are outstanding, even if such exercise has not been effected.

(h) "Registration Statement" means a registration statement of the Company filed under the Securities Act and covering Registrable Securities.

(i) "Rightsholders" means the Investor, the Agent and any persons or entities to whom the rights granted under this Agreement are transferred by the Investor, the Agent or his or its successors or assigns pursuant to Section 9 of this Agreement.

(j) "Securities Act" means the Securities Act of 1933, as amended, or any successor federal statute, and the rules and regulations of the Commission issued under such Act, as they each may, from time to time, be in effect.

2. Registration

(a) The Company shall use its best efforts to prepare and file with the Commission within 60 days of the date hereof a Registration Statement (the "INITIAL REGISTRATION STATEMENT") covering the resale of the Registrable Securities issued or issuable upon exercise of the Investor Warrants and the Agent Warrants and such other shares of Common Stock as the Company may desire to include pursuant to registration rights agreements

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with other Persons. The Company shall use its best efforts to have the Initial Registration Statement declared effective by the Commission within 90 days after the date the Initial Registration Statement is filed or as soon as possible thereafter.

(b) The Company shall use its best efforts to prepare and file with the Commission within 90 days of the date hereof a Registration Statement (the "PRE-ISSUANCE REGISTRATION STATEMENT") covering the resale of the maximum number of shares of Common Stock that may be issued to the Investor pursuant to Section 3 of the Purchase Agreement as of the filing of such Pre-Issuance Registration Statement. The Company shall use its best efforts to have the Pre-Issuance Registration Statement declared effective by the Commission within 90 days after the date the Pre-Issuance Registration Statement is filed or as soon as possible thereafter.

(c) In the event that any shares of Common Stock are issued to the Investor pursuant to Section 3 of the Purchase Agreement prior to the date the Pre-Issuance Registration Statement is declared effective by the Commission (the "UNREGISTERED SHARES"), the Company shall use its best efforts to prepare and

file with the Commission within 60 days of the date such Unregistered Shares are issued by the Company a Registration Statement (an "ADDITIONAL REGISTRATION STATEMENT") covering the resale of such Unregistered Shares. The Company shall use its best efforts to have an Additional Registration Statement declared effective by the Commission within 90 days after the date such Additional Registration Statement is filed or as soon as possible thereafter.

(d) In the event that the Company receives any comments from the Commission with respect to a Registration Statement, the Company shall notify the Rightsholders that it has received such comments and shall respond to the Commission as to such comments as promptly as practicable.

(e) The Company shall use its best efforts to cause each Registration Statement to remain effective until the date on which the Rightsholders do not hold any Registrable Securities covered by such Registration Statement.

3. Registration Procedures.

(a) In connection with the effectiveness of each Registration Statement, the Company shall furnish to each Rightsholder such reasonable numbers of copies of the relevant prospectus and such documents incident thereto, including any amendment of or supplement to such prospectus, as a Rightsholder from time to time may reasonably request in order to facilitate the disposition of such Rightsholder's Registrable Securities under such Registration Statement in conformity with the requirements of the Securities Act.

(b) The Company shall use its best efforts to register or qualify the Registrable Securities covered by a Registration Statement under the securities laws of such states of the United States as the Rightsholders may reasonably request; provided, however, that the Company shall not be required in connection with this paragraph (b) to qualify as a foreign corporation or execute a general consent to service of process in any jurisdiction.

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(c) If the Company has delivered preliminary or final prospectuses to the Rightsholders and if after having done so the Company determines that such prospectus and/or the Registration Statement of which such prospectus constitutes a part needs to be amended or supplemented to comply with the requirements of the Securities Act, the Company shall promptly notify the Rightsholders and, if requested by the Company, the Rightsholders shall immediately cease making offers or sales of shares under such Registration Statement and shall return all such prospectuses to the Company. The Company shall as promptly as reasonably practicable prepare and file with the Commission any required amendment or supplement and following such filing, and, if applicable, the effectiveness of such filing, shall provide the Rightsholders with revised or supplemented prospectuses. Following receipt of the revised or supplemented prospectuses, the Rightsholders shall be free to resume making offers and sales under such Registration Statement.

(d) If requested in writing by a Rightsholder in connection with the transfer by such Rightsholder of Registrable Securities held by such Rightsholder and the corresponding rights of the Rightsholder under this Agreement as permitted by Section 9, then the Company shall, subject to compliance by the transferee with Section 5 as a Rightsholder thereunder, prepare and file with the Commission an amendment or supplement to the applicable Registration Statement for the purpose of listing such transferee as an additional selling stockholder under such Registration Statement.

(e) The Company shall use its best efforts to cause all Registrable Securities registered pursuant to this Agreement to be listed on each securities exchange on which similar securities issued by the Company are then listed.

4. Limitations on Registration Rights.

(a) The Company may, by written notice to the Rightsholders, (i) delay the filing of, or effectiveness of, a Registration Statement (notwithstanding the provisions of Section 2) or (ii) suspend a Registration Statement after effectiveness and require that the Rightsholders immediately cease sales of shares pursuant to such Registration Statement, in the event that the Company is engaged in any activity or transaction or preparations or negotiations for any

activity or transaction that the Company desires to keep confidential for business reasons, if the Company determines in good faith that the public disclosure requirements imposed on the Company under the Securities Act in connection with such Registration Statement would require disclosure of such activity, transaction, preparations or negotiations.

(b) If the Company requires the Rightsholders to cease sales of shares pursuant to paragraph (a) above, the Company shall, as promptly as practicable following the termination of the circumstance which entitled the Company to do so, take such actions as may be necessary to reinstate the effectiveness of such Registration Statement and/or give written notice to all Rightsholders authorizing them to resume sales pursuant to such Registration Statement. If as a result thereof the prospectus included in such Registration Statement has been amended to comply with the requirements of the Securities Act, the Company shall enclose such revised prospectus with the notice to Rightsholders given pursuant to this paragraph (b), and the Rightsholders shall make no offers or sales of shares pursuant to such Registration Statement other than by means of such revised prospectus.

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(c) Notwithstanding the foregoing, the Company may not (i) delay the filing of, or the effectiveness of, a Registration Statement or (ii) suspend such Registration Statement, pursuant to paragraph (a) above on more than two occasions during any 12-month period or for more than 60 days per such occasion.

5. Obligations of the Rightsholders.

(a) The Company shall not be required to include any Registrable Securities in a Registration Statement unless such Rightsholder shall have furnished to the Company such information regarding itself, the Registrable Securities held by it and the intended method of disposition of the Registrable Securities held by it as shall be reasonably required by the Company to effect the effectiveness of such Registration Statement and unless such Rightsholder shall have executed such documents in connection with such Registration Statement as the Company may reasonably request. Each Rightsholder shall promptly notify the Company of any material change with respect to such information previously provided to the Company by such Rightsholder, including without limitation notice of the sale by the Rightsholder of any Registrable Securities.

(b) Each Rightsholder agrees to cooperate with the Company as reasonably requested by the Company in connection with the preparation and filing of each Registration Statement hereunder.

6. Expenses of Registration. The Company shall pay the expenses incurred by it in complying with its obligations under this Agreement, including all registration and filing fees, exchange listing fees, fees and expenses of counsel for the Company, and fees and expenses of accountants for the Company, but excluding (a) any brokerage fees, selling commissions or underwriting discounts incurred by the Rightsholders in connection with sales under the Registration Statement and (b) the fees and expenses of any counsel retained by Rightsholders.

7. Indemnification and Contribution.

(a) In the event of any registration of any of the Registrable Securities under the Securities Act pursuant to this Agreement, the Company will indemnify and hold harmless each Rightsholder, each of its officers, directors and partners, and each underwriter of such Registrable Securities, if any, and each other person, if any, who controls such Rightsholder or underwriter within the meaning of the Securities Act or the Exchange Act against any and all losses, claims, damages or liabilities, joint or several, to which such Rightsholder, underwriter or controlling person may become subject under the Securities Act, the Exchange Act, state securities or Blue Sky laws or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon (i) any untrue statement or alleged untrue statement of any material fact contained in the Registration Statement registering such Registrable Securities, any preliminary prospectus or final prospectus contained in such Registration Statement, or any amendment or supplement to such Registration Statement or (ii) the omission or alleged omission to state a material fact required to be stated therein or necessary to

make the statements therein not misleading; and the Company will reimburse such Rightsholder, underwriter and each such controlling person for any legal or any other expenses reasonably incurred by such Rightsholder, underwriter or controlling person in connection with

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investigating or defending any such loss, claim, damage, liability or action; provided, however, that the Company will not be liable in any such case to the extent that any such loss, claim, damage, liability or action arises out of or is based upon any untrue statement or omission made in such Registration Statement, preliminary prospectus or final prospectus, or any such amendment or supplement, in reliance upon and in conformity with information furnished to the Company by or on behalf of such Rightsholder, underwriter or controlling person and stated to be specifically for use in connection with such Registration Statement; and provided further that the foregoing indemnity agreement is subject to the condition that, insofar as it relates to any untrue statement, alleged untrue statement, omission or alleged omission made in any Registration Statement, prospectus or amendment or supplement that was eliminated, remedied or cured by the Company, such indemnity agreement shall not inure to the benefit of any Rightsholder from whom the Person asserting any loss, claim, damage or liability purchased the Registrable Securities if a copy of such Registration Statement, prospectus, amendment or supplement was provided by the Company to the Rightsholder but was not given or sent to such Person by the Rightsholder prior to written confirmation of such sale.

(b) Each Rightsholder, severally and not jointly, will indemnify and hold harmless the Company, each of its directors and officers and each underwriter (if any) and each person, if any, who controls the Company or any such underwriter within the meaning of the Securities Act or the Exchange Act, against any losses, claims, damages or liabilities, joint or several, to which the Company, such directors and officers, underwriter or controlling person may become subject under the Securities Act, Exchange Act, state securities or Blue Sky laws or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon (i) any untrue statement or alleged untrue statement of a material fact contained in a Registration Statement, any preliminary prospectus or final prospectus contained in such Registration Statement, or any amendment or supplement to such Registration Statement, or (ii) any omission or alleged omission to state a material fact required to be stated therein or necessary to make the statements therein not misleading, if and to the extent (and only to the extent) that the statement or omission was made in reliance upon and in conformity with written information relating to such Rightsholder furnished to the Company by such Rightsholder and stated to be specifically for use in connection with such Registration Statement, prospectus, amendment or supplement; provided, however, that the obligations of a Rightsholder hereunder shall be limited to an amount equal to the net proceeds to such Rightsholder of Registrable Securities sold in connection with such registration.

(c) Each Indemnified Party shall give notice to the Indemnifying Party promptly after such Indemnified Party has actual knowledge of any claim as to which indemnity may be sought, and shall permit the Indemnifying Party to assume the defense of any such claim or any litigation resulting therefrom; provided, that counsel for the Indemnifying Party, who shall conduct the defense of such claim or litigation, shall be approved by the Indemnified Party (whose approval shall not be unreasonably withheld, conditioned or delayed); and, provided, further, that the failure of any Indemnified Party to give notice as provided herein shall not relieve the Indemnifying Party of its obligations under this Section 7 except to the extent that the Indemnifying Party is adversely affected by such failure. The Indemnified Party may participate in such defense at such party's expense; provided, however, that the Indemnifying Party shall pay such expense if the Indemnified Party reasonably concludes based upon written advice of its counsel that representation of such Indemnified Party by the counsel retained by the

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Indemnifying Party would be inappropriate due to actual or potential differing interests between the Indemnified Party and any other party represented by such

counsel in such proceeding; provided further that in no event shall the Indemnifying Party be required to pay the expenses of more than one law firm per jurisdiction as counsel for the Indemnified Party. The Indemnifying Party also shall be responsible for the expenses of such defense if the Indemnifying Party does not elect to assume such defense. No Indemnifying Party, in the defense of any such claim or litigation shall, 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 of such claim or litigation, and no Indemnified Party shall consent to entry of any judgment or settle such claim or litigation without the prior written consent of the Indemnifying Party, which consent shall not be unreasonably withheld, conditioned or delayed.

(d) In order to provide for just and equitable contribution in circumstances in which the indemnification provided for in this Section 7 is due in accordance with its terms but for any reason is held to be unavailable to an Indemnified Party in respect to any losses, claims, damages and liabilities referred to herein, then the Indemnifying Party shall, in lieu of indemnifying such Indemnified Party, contribute to the amount paid or payable by such Indemnified Party as a result of such losses, claims, damages or liabilities to which such party may be subject in such proportion as is appropriate to reflect the relative fault of the Company on the one hand and the Rightsholders on the other in connection with the statements or omissions which resulted in such losses, claims, damages or liabilities, as well as any other relevant equitable considerations. The relative fault of the Company and the Rightsholders shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of material fact related to information supplied by the Company or the Rightsholders and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and the Rightsholders agree that it would not be just and equitable if contribution pursuant to this Section 7(d) were determined by pro rata allocation or by any other method of allocation which does not take account of the equitable considerations referred to above. Notwithstanding the provisions of this Section 7(d), (i) in no case shall any one Rightsholder be liable or responsible for any amount in excess of the gross proceeds received by such Rightsholder from the offering of Registrable Securities and (ii) the Company shall be liable and responsible for any amount in excess of such proceeds; provided, however, 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. Any party entitled to contribution will, promptly after receipt of notice of commencement of any action, suit or proceeding against such party in respect of which a claim for contribution may be made against another party or parties under this Section 7(d), notify such party or parties from whom contribution may be sought, but the omission so to notify such party or parties from whom contribution may be sought shall not relieve such party from any other obligation it or they may have thereunder or otherwise under this Section 7(d) except to the extent that the party or parties from whom contribution may be sought are adversely affected. No party shall be liable for contribution with respect to any action, suit, proceeding or claim settled without its prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed.

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8. Reporting. With a view to making available to the Rightsholders the benefits of Rule 144 promulgated under the Securities Act or any other similar rule or regulation of the Commission that may at any time permit the Rightsholders to sell securities of the Company to the public without registration ("RULE 144"), for so long as Rightsholders continue to own Registrable Securities, the Company shall use its reasonable efforts to:

(a) make and keep public information available, as those terms are understood and defined in Rule 144, and file with the Commission in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act; and

(b) furnish to each Rightsholder, for so long as such Rightsholder owns Registrable Securities, promptly upon request, (i) a written statement by the Company, if true, that it has complied with the applicable reporting requirements of Rule 144, the Securities Act and the Exchange Act, (ii) a copy

of the most recent annual or quarterly report of the Company and (iii) such other information as may be reasonably requested to permit the Rightsholders to sell such securities pursuant to Rule 144 without registration.

9. Assignment of Registration Rights. The rights under this Agreement shall not be assigned by any Rightsholder except in connection with the transfer of Registrable Securities by such Rightsholder to an affiliate or shareholder of such Rightsholder, provided that (i) the Rightsholder agrees in writing with the transferee or assignee to assign such rights, and a copy of such agreement is furnished to the Company; (ii) the Company is furnished with written notice of (a) the name and address of such transferee or assignee, and (b) the securities with respect to which such rights are being transferred or assigned; (iii) at or before the time the Company receives the written notice contemplated by clause (ii) of this sentence, the transferee or assignee agrees in writing with the Company to be bound by all of the obligations of an Rightsholder under this Agreement; and (iv) such transfer shall have been conducted in accordance with all applicable federal and state securities laws.

10. Amendment of Registration Rights. Any provision of this Agreement may be amended and the observance of any provision of this Agreement may be waived (either generally or in a particular instance and either retroactively or prospectively), only with the written consent of the Company and Rightsholders who then hold at least a majority of the Registrable Securities. Any amendment or waiver effected in accordance with this Section 10 shall be binding upon each Rightsholder and the Company. No such amendment shall be effective to the extent that it applies to less than all of the holders of the Registrable Securities. No consideration shall be offered or paid to any Person to amend or consent to a waiver or modification of any provision of any of this Agreement unless the same consideration also is offered to all of the parties to this Agreement.

11. Miscellaneous.

(a) A Person is deemed to be a holder of Registrable Securities whenever such Person owns or is deemed to own of record such Registrable Securities. If the Company receives conflicting instructions, notices or elections from two or more Persons with respect to the same Registrable Securities, the Company shall act upon the basis of instructions, notice or election received from the record owner of such Registrable Securities.

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(b) Any notices, consents, waivers or other communications required or permitted to be given under the terms of this Agreement must be in writing and will be deemed to have been delivered: (i) upon receipt, when delivered personally; (ii) upon receipt, when sent by facsimile; or (iii) two (2) Business Days after deposit with a reputable overnight delivery service, in each case properly addressed to the party to receive the same. The addresses and facsimile numbers for such communications shall be:

If to the Company:

Idera Pharmaceuticals, Inc.
345 Vassar Street
Cambridge, MA 02139-4818
Telephone: 617-679-5500
Facsimile: 617-679-5592
Attention: Chief Financial Officer

with a copy to:

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, MA 02109
Telephone: 617-526-6000
Facsimile: 617-526-5000
Attention: David E. Redlick, Esq.

If to the Investor:

Biotech Shares Ltd.
St. James's Chambers
64A Athol Street

If to the Agent:

Youssef El-Zein
Starco Center
Omar Daouk Street
Bloc B, 1st Floor
Beirut Central District
Beirut 2020-3313
Lebanon

If to a Rightsholder, to its address and facsimile number as set forth above, or to such other address and/or facsimile number and/or to the attention of such other Person as the

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recipient party has specified by written notice given to each other party five (5) days prior to the effectiveness of such change.

Written confirmation of receipt (A) given by the recipient of such notice, consent, waiver or other communication, (B) mechanically or electronically generated by the sender's facsimile machine containing the time, date, recipient facsimile number and an image of the first page of such transmission, or (C) provided by a courier or overnight courier service shall be rebuttable evidence of personal service, receipt by facsimile or receipt from a reputable overnight delivery service in accordance with clause (i), (ii) or (iii) above, respectively.

(c) Failure of any party to exercise any right or remedy under this Agreement or otherwise, or delay by a party in exercising such right or remedy, shall not operate as a waiver thereof.

(d) All questions concerning the construction, validity, enforcement and interpretation of this Agreement shall be governed by the internal laws of the State of Delaware, without giving effect to any choice of law or conflict of law provision or rule (whether of the State of Delaware or any other jurisdictions) that would cause the application of the laws of any jurisdictions other than the State of Delaware.

(e) This Agreement and the documents referenced herein constitute the entire agreement among the parties hereto with respect to the subject matter hereof and thereof. There are no restrictions, promises, warranties or undertakings, other than those set forth or referred to herein and therein. This Agreement and the documents referenced herein supersede all prior agreements and understandings among the parties hereto with respect to the subject matter hereof.

(f) Subject to the requirements of Section 9 of this Agreement, this Agreement shall inure to the benefit of and be binding upon the permitted successors and assigns of each of the parties hereto.

(g) The headings in this Agreement are for convenience of reference only and shall not limit or otherwise affect the meaning hereof.

(h) This Agreement may be executed in identical counterparts, each of which shall be deemed an original but all of which shall constitute one and the same agreement. This Agreement, once executed by a party, may be delivered to the other parties hereto by facsimile transmission of a copy of this Agreement bearing the signature of the party so delivering this Agreement.

(i) Each party shall do and perform, or cause to be done and performed, all such further acts and things, and shall execute and deliver all such other agreements, certificates, instruments and documents, as the other party may reasonably request in order to carry out the intent and accomplish the purposes of this Agreement and the consummation of the transactions contemplated hereby.

(j) The language used in this Agreement will be deemed to be the language chosen by the parties to express their mutual intent and no rules of strict construction will be applied against any party.

(k) This Agreement is intended for the benefit of the parties hereto and their respective permitted successors and assigns, and is not for the benefit of, nor may any provision hereof be enforced by, any other Person.

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IN WITNESS WHEREOF, the parties have caused this Registration Rights Agreement to be duly executed as of the day and year first above written.

COMPANY:

IDERA PHARMACEUTICALS, INC.

By: /s/ Sudhir Agrawal

Name: Sudhir Agrawal
Title: Chief Executive Officer

INVESTOR:

BIOTECH SHARES LTD.

By: /s/ Oussama Salam

Name: Oussama Salam
Title: Director

AGENT:

YOUSSEF EL-ZEIN

/s/ Youssef El-Zein

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face of this Warrant minus the number of Warrant Shares for which this Warrant was so exercised.

(d) Exercise by Non-U.S. Person. It shall be a condition to the exercise of this Warrant by a Registered Holder that is not a U.S. Person (as defined under the Securities Act of 1933, as amended (the "Securities Act")) that such Registered Holder certify in writing to the Company that it is not a U.S. Person and that this Warrant is not being exercised on behalf of a U.S. Person.

2. Adjustments.

(a) Adjustment for Stock Splits and Combinations. If the Company shall at any time, or from time to time after the date on which this Warrant was first issued (or, if this Warrant was issued upon partial exercise of, or in replacement of, another warrant of like tenor, then the date on which such original warrant was first issued) (either such date being referred to as the "Original Issue Date") effect a subdivision of the outstanding Common Stock, the Purchase Price then in effect immediately before that subdivision shall be proportionately decreased. If the Company shall at any time, or from time to time, after the Original Issue Date combine the outstanding shares of Common Stock, the Purchase Price then in effect immediately before the combination shall be proportionately increased. Any adjustment under this paragraph shall become effective at the close of business on the date the subdivision or combination becomes effective.

(b) Adjustment for Certain Dividends and Distributions. In the event the Company at any time, or from time to time after the Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in additional shares of Common Stock, then and in each such event the Purchase Price then in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the

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close of business on such record date, by multiplying the Purchase Price then in effect by a fraction:

(i) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(ii) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution;

provided, however, that if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Purchase Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Purchase Price shall be adjusted pursuant to this paragraph as of the time of actual payment of such dividends or distributions.

(c) Adjustment in Number of Warrant Shares. When any adjustment is required to be made in the Purchase Price pursuant to subsections 2(a) or 2(b) above, the number of Warrant Shares purchasable upon the exercise of this Warrant shall be changed to the number determined by dividing (i) an amount equal to the number of shares issuable upon the exercise of this Warrant immediately prior to such adjustment, multiplied by the Purchase Price in effect immediately prior to such adjustment, by (ii) the Purchase Price in effect immediately after such adjustment.

(d) Adjustments for Other Dividends and Distributions. In the event the Company at any time, or from time to time after the Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Company (other than shares of Common Stock) or in cash or other property (other than regular cash dividends paid out of earnings or earned surplus, determined in accordance with generally accepted accounting

principles), then and in each such event provision shall be made so that the Registered Holder shall receive upon exercise hereof, in addition to the number of shares of Common Stock issuable hereunder, the kind and amount of securities of the Company, cash or other property which the Registered Holder would have been entitled to receive had this Warrant been exercised on the date of such event and had the Registered Holder thereafter, during the period from the date of such event to and including the Exercise Date, retained any such securities receivable during such period, giving application to all adjustments called for during such period under this Section 2 with respect to the rights of the Registered Holder.

(e) Adjustment for Reorganization. If there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Company in which the Common Stock is converted into or exchanged for securities, cash or other property (other than a transaction covered by subsections 2(a), 2(b) or 2(d)) (collectively, a "Reorganization"), then, following such Reorganization, the Registered Holder shall receive upon exercise hereof the kind and amount of securities, cash or other property which the Registered Holder would have been

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entitled to receive pursuant to such Reorganization if such exercise had taken place immediately prior to such Reorganization. In any such case, appropriate adjustment (as determined in good faith by the Board of Directors of the Company (the "Board")) shall be made in the application of the provisions set forth herein with respect to the rights and interests thereafter of the Registered Holder, to the end that the provisions set forth in this Section 2 (including provisions with respect to changes in and other adjustments of the Purchase Price) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities, cash or other property thereafter deliverable upon the exercise of this Warrant.

(f) Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Purchase Price pursuant to this Section 2, the Company at its expense shall, as promptly as reasonably practicable but in any event not later than 30 days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to the Registered Holder a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property for which this Warrant shall be exercisable and the Purchase Price) and showing in detail the facts upon which such adjustment or readjustment is based. The Company shall, as promptly as reasonably practicable after the written request at any time of the Registered Holder (but in any event not later than 30 days thereafter), furnish or cause to be furnished to the Registered Holder a certificate setting forth (i) the Purchase Price then in effect and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the exercise of this Warrant.

3. Fractional Shares. The Company shall not be required upon the exercise of this Warrant to issue any fractional shares, but shall pay the value thereof to the Registered Holder in cash on the basis of the Fair Market Value per share of Common Stock. The "Fair Market Value" per share of Common Stock shall be determined as follows:

(a) If the Common Stock is listed on a national securities exchange, the Nasdaq National Market, the Nasdaq Capital Market, the OTC Bulletin Board or another nationally recognized trading system as of the Exercise Date, the Fair Market Value per share of Common Stock shall be deemed to be the average of the high and low reported sale prices per share of Common Stock thereon for the five consecutive trading day period immediately preceding the Exercise Date; provided that if the Common Stock is not so listed during such period, the Fair Market Value per share of Common Stock shall be determined pursuant to clause 3(b).

(b) If the Common Stock is not listed on a national securities exchange, the Nasdaq National Market, the Nasdaq Capital Market, the OTC Bulletin Board or another nationally recognized trading system as of the Exercise Date, the Fair Market Value per share of Common Stock shall be deemed to be the amount most recently determined by the Board or an authorized committee of the Board to represent the fair market value per share of the Common Stock (including without limitation a determination for purposes of granting Common Stock options or issuing Common Stock under any plan, agreement

or arrangement with employees of the Company).

4. Redemption of Warrants.

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(a) Subject to the terms of this Section 4, the Company shall have the right to redeem this Warrant for a redemption price (the "Redemption Price") equal to the result obtained by multiplying (i) \$0.01 by (ii) the number of Warrant Shares that the Registered Holder is entitled to purchase upon exercise of this Warrant immediately prior to the termination of this Warrant under Section 4(d) below (such Redemption Price being subject to adjustment for stock splits, stock dividends, combinations, recapitalizations, reclassifications, and similar transactions affecting the Common Stock).

(b) The Company shall exercise this redemption right by providing at least 30 days' prior written notice to the Registered Holder of such redemption (the "Redemption Notice"). Such Redemption Notice shall be provided to the Registered Holder in accordance with Section 10 of this Warrant. The Redemption Notice shall specify the time, manner and place of redemption, including without limitation the date on which this Warrant shall be redeemed (the "Redemption Date") and the Redemption Price payable to the Registered Holder (assuming that this Warrant is not exercised on or prior to the Redemption Date).

(c) Notwithstanding the foregoing, the Company may not redeem this Warrant or provide the Redemption Notice to the Registered Holder (i) prior to March 24, 2010 and (ii) unless the closing sales price of the Common Stock on each day of a 15 consecutive trading day period ending within 30 days prior to the date the Company provides the Redemption Notice to the Registered Holder is greater than or equal to 250% of the Purchase Price then in effect.

(d) This Warrant shall cease to be exercisable and shall be terminated and of no further force or effect effective at 5:00 p.m. (Boston Time) on the Redemption Date. If the Registered Holder does not exercise this Warrant on or prior to the Redemption Date, the Registered Holder shall surrender this Warrant to the Company on the Redemption Date for cancellation. From and after the Redemption Date, the Registered Holder's sole right hereunder shall be to receive the Redemption Price, without interest, upon presentation and surrender of this Warrant for cancellation.

5. Transfers, etc.

(a) Neither this Warrant nor the Warrant Shares shall be sold or transferred unless either (i) they first shall have been registered under the Securities Act, or (ii) the Company first shall have been furnished with an opinion of legal counsel, reasonably satisfactory to the Company, to the effect that such sale or transfer is exempt from the registration requirements of the Securities Act. Notwithstanding the foregoing, no registration or opinion of counsel shall be required for a transfer made in accordance with Rule 144 under the Securities Act.

(b) Each certificate representing Warrant Shares shall bear a legend substantially in the following form:

"The securities represented by this certificate have not been registered under the Securities Act of 1933, as amended, and may not be offered, sold or otherwise transferred, pledged or hypothecated unless and until such securities are registered under such Act or an opinion of counsel

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satisfactory to the Company is obtained to the effect that such registration is not required."

The foregoing legend shall be removed from the certificates representing any Warrant Shares, at the request of the holder thereof, at such time as they become eligible for resale pursuant to Rule 144(k) under the Securities Act.

(c) In the case of a Registered Holder that is a non-U.S. Person:

(i) THIS WARRANT AND THE WARRANT SHARES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 AND THIS WARRANT MAY NOT BE EXERCISED BY OR ON BEHALF OF A U.S. PERSON UNLESS REGISTERED UNDER THE SECURITIES ACT OF 1933 OR AN EXEMPTION FROM SUCH REGISTRATION IS AVAILABLE.

(ii) This Warrant and the Warrant Shares shall not be sold or transferred except (A) in accordance with the provisions of Regulation S under the Securities Act, (B) pursuant to registration under the Securities Act or (C) pursuant to an available exemption from registration under the Securities Act. Hedging transactions involving this Warrant and the Warrant Shares may not be conducted unless in compliance with the Securities Act.

(iii) Notwithstanding Section 5(b) to the contrary, each certificate representing Warrant Shares issued to a Registered Holder that is a non-U.S. Person shall bear a legend substantially in the following form:

"These shares have not been registered under the Securities Act of 1933. They may not be offered or transferred by sale, assignment, pledge or otherwise unless (i) a registration statement for the shares under the Securities Act of 1933 is in effect or (ii) the corporation has received an opinion of counsel, which opinion is satisfactory to the corporation, to the effect that such registration is not required under the Securities Act of 1933 or (iii) such offer or transfer is made in accordance with the provisions of Regulation S under the Securities Act of 1933. Hedging transactions involving these shares may not be conducted unless in compliance with the Securities Act of 1933."

(d) The Company has agreed pursuant to the Registration Rights Agreement dated as of March 24, 2006 by and among the Company, Biotech Shares Ltd. and the Agent (as defined therein) to file a registration statement with the U.S. Securities and Exchange Commission to register the Warrant Shares under the Securities Act. The Company shall remove the legend on any certificate representing Warrant Shares if such Warrant Shares are resold or transferred pursuant to an effective registration statement under the Securities Act.

(e) The Company will maintain a register containing the name and address of the Registered Holder of this Warrant. The Registered Holder may change its address as shown on the warrant register by written notice to the Company requesting such change.

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(f) Notwithstanding Section 5(a) above, a Registered Holder which is an entity may transfer this Warrant, in whole, to a wholly owned subsidiary or a shareholder of such entity, a Registered Holder which is a partnership may transfer this Warrant, in whole, to a partner of such partnership or a retired partner of such partnership or to the estate of any such partner or retired partner, a Registered Holder which is a limited liability company may transfer this Warrant, in whole, to a member of such limited liability company or a retired member or to the estate of any such member or retired member and a Registered Holder who is an individual may transfer this Warrant, in whole, to such individual's spouse, children, parents, siblings, grandchildren or any trust established exclusively for the benefit of one or more of the foregoing individuals, or by will or the laws of descent and distribution (in each case, a "Permitted Transferee"). This Warrant and all rights hereunder are transferable to a Permitted Transferee, in whole, upon surrender of this Warrant with a properly executed assignment (in the form of Exhibit II hereto) at the principal office of the Company (or, if another office or agency has been designated by the Company for such purpose, then at such other office or agency).

6. No Impairment. The Company will not, by amendment of its charter or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such action as may be necessary or appropriate in order to protect the rights of the Registered Holder against impairment.

7. Notices of Record Date, etc. In the event:

(a) the Company shall take a record of the holders of its Common Stock (or other stock or securities at the time deliverable upon the exercise of this Warrant) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of stock of any class or any other securities, or to receive any other right; or

(b) of any capital reorganization of the Company, any reclassification of the Common Stock of the Company, any consolidation or merger of the Company with or into another corporation (other than a consolidation or merger in which the Company is the surviving entity and its Common Stock is not converted into or exchanged for any other securities or property), or any transfer of all or substantially all of the assets of the Company; or

(c) of the voluntary or involuntary dissolution, liquidation or winding-up of the Company,

then, and in each such case, the Company will send or cause to be sent to the Registered Holder a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is to take place, and the time, if any is to be fixed, as of which the holders of record of Common Stock (or such other stock or securities at the time deliverable upon the exercise of this Warrant) shall be entitled to exchange their shares of Common Stock (or such other stock or securities) for securities or other property deliverable upon such

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reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up. Such notice shall be sent at least 10 days prior to the record date or effective date for the event specified in such notice.

8. Reservation of Stock. The Company will at all times reserve and keep available, solely for issuance and delivery upon the exercise of this Warrant, such number of Warrant Shares and other securities, cash and/or property, as from time to time shall be issuable upon the exercise of this Warrant.

9. Exchange or Replacement of Warrants.

(a) Upon the surrender by the Registered Holder, properly endorsed, to the Company at the principal office of the Company, the Company will, subject to the provisions of Section 5 hereof, issue and deliver to or upon the order of the Registered Holder, at the Company's expense, a new Warrant or Warrants of like tenor, in the name of the Registered Holder or as the Registered Holder (upon payment by the Registered Holder of any applicable transfer taxes) may direct, calling in the aggregate on the face or faces thereof for the number of shares of Common Stock (or other securities, cash and/or property) then issuable upon exercise of this Warrant.

(b) Upon receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and (in the case of loss, theft or destruction) upon delivery of an indemnity agreement (with surety if reasonably required) in an amount reasonably satisfactory to the Company, or (in the case of mutilation) upon surrender and cancellation of this Warrant, the Company will issue, in lieu thereof, a new Warrant of like tenor.

10. Notices. All notices and other communications from the Company to the Registered Holder in connection herewith shall be mailed by certified or registered mail, postage prepaid, or sent via a reputable overnight courier service to the address last furnished to the Company in writing by the Registered Holder. All notices and other communications from the Registered Holder to the Company in connection herewith shall be mailed by certified or registered mail, postage prepaid, or sent via a reputable overnight courier service to the Company at its principal office set forth below. If the Company should at any time change the location of its principal office to a place other than as set forth below, it shall give prompt written notice to the Registered Holder and thereafter all references in this Warrant to the location of its principal office at the particular time shall be as so specified in such notice. All such notices and communications shall be deemed delivered (i) two business days after being sent by certified or registered mail, return receipt requested,

postage prepaid, or (ii) two business days after being sent via a reputable overnight courier service.

11. No Rights as Stockholder. Until the exercise of this Warrant, the Registered Holder shall not have or exercise any rights by virtue hereof as a stockholder of the Company. Notwithstanding the foregoing, in the event (i) the Company effects a split of the Common Stock by means of a stock dividend and the Purchase Price of and the number of Warrant Shares are adjusted as of the date of the distribution of the dividend (rather than as of the record date for such dividend), and (ii) the Registered Holder exercises this Warrant between the record date and the distribution date for such stock dividend, the Registered Holder shall be entitled to receive,

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on the distribution date, the stock dividend with respect to the shares of Common Stock acquired upon such exercise, notwithstanding the fact that such shares were not outstanding as of the close of business on the record date for such stock dividend.

12. Amendment or Waiver. Any term of this Warrant may be amended or waived only by an instrument in writing signed by the party against which enforcement of the change or waiver is sought. No waivers of any term, condition or provision of this Warrant, in any one or more instances, shall be deemed to be, or construed as, a further or continuing waiver of any such term, condition or provision.

13. Section Headings. The section headings in this Warrant are for the convenience of the parties and in no way alter, modify, amend, limit or restrict the contractual obligations of the parties.

14. Governing Law. This Warrant will be governed by and construed in accordance with the internal laws of the State of Delaware (without reference to the conflicts of law provisions thereof).

15. Facsimile Signatures. This Warrant may be executed by facsimile signature.

16. Acceptance by Registered Holder. By acquiring and accepting this Warrant, the Registered Holder shall be deemed to have agreed and accepted the terms and conditions of this Warrant.

EXECUTED as of the Date of Issuance indicated above.

IDERA PHARMACEUTICALS, INC.

By: /s/ Sudhir Agrawal

Title: Chief Executive Officer

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EXHIBIT I

PURCHASE FORM

To: Idera Pharmaceuticals, Inc.

Dated: _____

The undersigned, pursuant to the provisions set forth in the attached Warrant (No. _____), hereby elects to purchase _____ shares of the Common Stock of Idera Pharmaceuticals, Inc. covered by such Warrant.

The undersigned herewith makes a payment of \$_____ representing the full purchase price for such shares at the price per share provided for in such Warrant.

Signature:

Address: -----

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EXHIBIT II

ASSIGNMENT FORM

FOR VALUE RECEIVED, _____ hereby sells,
assigns and transfers all of the rights of the undersigned under the attached
Warrant (No. _____) with respect to all of the shares of Common Stock of Idera
Pharmaceuticals, Inc. covered thereby set forth below, unto:

Name of Assignee	Address	No. of Shares
------------------	---------	---------------

Dated: _____

Signature: -----

Signature Guaranteed:

By: -----

The signature should be guaranteed by an eligible guarantor institution (banks, stockbrokers, savings and loan associations and credit unions with membership in an approved signature guarantee medallion program) pursuant to Rule 17Ad-15 under the Securities Exchange Act of 1934.

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